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# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, July 7, 1894.

Tec "

DAVID WILLIAMS, - PUBLISHER

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ST. LOUISBank of Commerce Building.
CLEVELAND

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

#### American Tin Plate List.

With the object of furnishing to the tin plate trade and to consumers of tin and terne plates generally the latest information in regard to the products of the domestic manufacturers, we print in this issue a comprehensive list of American tin plate makers and the names of their brands of tin and terne plates, together with an alphabetical list of the latter. The list may be claimed to be as accurate and complete as it is possible to obtain, being based on returns received direct from the makers within the last two weeks. Only such brands are included as are at present actually on the market. The tables will, therefore, be found very valuable for reference. Brands of domestic tin and terne plates have increased and multiplied so luxuriantly during the past two years that it has become an utter impossibility for any one to maintain an acquaintance with the mass of new names without such a guide as the list we now present. Nothing of the kind has yet been printed, but that the want of such specific information is widely felt is proved by the numerous inquiries in regard to new brands addressed to The Metal Worker. The details given as to the number of tinning sets possessed and in operation, although not entirely complete in regard to the latter subject-a few manufacturers having declined to furnish this information-will be found useful as affording an approximate idea of the capacity of the various works. The increasing number of concerns rolling their own black sheets will be noted as an encouraging feature of the domestic tin plate situation.

#### Carbonic Acid Gas.

Notwithstanding all that has been said and written regarding carbonic acid gas and its presence in our atmosphere, there still exists in the minds of many who ought to be better informed

a somewhat hazvidea of its character istics and its relation to human comfort. The ventilating engineer is continually meeting with those who still have absolute confidence in the long since exploded belief that this gas, immediately upon expiration, settled to the floor, because of its greater density. and there remained as a ponderable mass. Of course the accompanying idea that this gas must therefore be removed at the level of the floor is presented to him to combat. It is true that carbonic acid gas has a density or specific gravity about 50 per cent, greater than air and that it can be poured like a liquid from one receptacle to another, but it is likewise true that once thoroughly mixed with air the mixture becomes permanent and no length of time will show any tendency on the part of the carbonic acid to settle out. Nevertheless the two gases can be placed one above the other in a bottle and will remain separate if not agitated. To a more marked degree the conditions are the same in the case of the wells that were formerly used on the island of Bermuda, where, owing to the porosity of the soil, fresh water wells with supply from below are unknown. Instead, however, the wells at low levels partially fill with the salt water that percolates through the coral formation while the surface water is conducted to them from above. This fresh water will remain for days upon the surface of, and practically separate from, the salt water beneath. But once agitated the mixture is complete and no amount of standing will cause it to return to the original conditions of separate lavers.

#### Diffusion in Air.

The carbonic acid gas formed in the process of respiration becomes of necessity intimately mixed with air in the expired breath, while from the skin there is also a constant discharge of this gas, only about one-fifth as great, but well distributed over the body. In still air of moderate temperature the exhaled products of respiration being at a temperature of about 90° will naturally tend to rise and even more rapidly to diffuse in the surrounding atmosphere. In fact, the carbonic acid gas that is breathed out is almost instantaneously absorbed by and inseparably mixed with the air of the room. Therefore provision for ventilation should be regulated not by the relative densities of air and this gas, but rather by the natural direction of the air currents in the apartment under all conditions, avoiding any possibility of drafts. Certainly with the ready dispersion of this gas in a room of moderate size, and its consequent equal distribution throughout the apartment, it can make but little difference from this standpoint just where the ventiliting opening is placed. It is desirable, however, to always permit the air supplied to make as complete a sweep of the room as is possible before it is permitted to escape.

#### Ventilation.

Ventilation, therefore, becomes not so much the actual removal of foul. and vitiated air, as some would have us believe, as the supply of fresh air in such quantity as to properly dilute that within the room. If it were not necessarily a continuous process, we might look to some scheme of absorption or of chemical union with the gas in the air, thereby rendering it sufficiently pure, just as one might attempt to reduce the salinity of the agitated waters of a Bermuda well instead of mixing therewith the necessary amount of fresh water to reduce it below an objectionable degree of saltness. In fact, this principle of dilution holds so fully that we may even calculate with considerable accuracy the percentage of carbonic acid gas present in a given apartment, if we know the number of occupants, the time of their occupation and the volume of air continuously admitted. Or we may, on the other hand, calculate the volume of air actually admitted if we are informed as to the other factors of occupants, time of occupancy and percentage of carbonic acid present. A more complete realization of the condition existing, even as brifly stated here, cannot fail to result in improved methods of ventilation and to lessen the cause for discussion between heating and ventilating engineers, architect and client.

The Bureau of the American Republies announces that the new port of Barrios on the Atlantic coast of Guatemala has been declared open for traffic. Barrios is the northern terminus of a railroad, one third of which is finished, which is designed to stretch across the isthmus to the port of San Jose on the Pacific coast. When the line is completed the time of transit from ocean to ocean by this route will be ten hours.

The official report, just issued, on the foreign trade of Germany in the year 1893 shows a decline in imports of \$23,-250,000, as compared with those of 1892; the most important decreases being in wheat, wool and cattle. Exports, on the other hand, increased during the year by \$23,500,000, leaving a balance of about \$250,000 in favor of Germany. Iron and iron goods are among the articles which show the greatest gain, the increase over 1892 being about \$4,750,000 in value.

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## Press Working of Sheet Metals.—VIII.

BY OBERLIN SMITH

Redrawing. Following the drawing process proper, as described in the last chapter, is the process of "deepening," "reducing" or "redrawing," by any of which terms it is frequently known. It depends in general upon the same principles, but offers somewhat in detail. The chief difference is that instead of drawing a comparatively shallow cup shaped arti-cle from a flat blank, it deepens the cups already made into other and deeper cups, at the same time reducing their diameter. In Fig. 271 is shown, in vertical axial section, a pair of dies for performing such operations. In Fig. 272 is a section of a cup shaped piece of work which, by the way, is often technically called a "cup" by the makers of cartridges and such like articles, its name after redrawing being a "shell." It has provided a "shell." It has previously been drawn from a blank, as described in Chapter VII, and is placed in a recess in the lower d.e. L., made to fit it, so as to guide it centrally into place. The upper die U is of such a diameter as to the rounded corners at rand r, Fig. 271, being made of such curvature as to fit each other. Successive stages of the work as thus redrawn are shown respectively in Figs. 273, 274 and 275. The rounded corner of the drawing punch r' obviously governs the corner of the finished work, as shown by the same letter. After the first redrawing the deepened cup or tube can obviously be again drawn, with another reduction of diameter, and then again, and so on ad infinitum, within certain practical limits. These limits are chiefly governed by the condition of the metal, which tends to harden in more or less degree, just as it does with other forging operations. With iron, steel, brass, copper, &c., annealing is necessary after each two or With such annealing, three draws. however, almost any increase of length can be obtained, as is shown in the case of an ordinary cartridge shell, pen holder tube, or similar article. A series of successive stages of such redrawing are shown in Figs 287 to 291, inclu sive. In the case of tin plate or other metal which cannot be annealed without spoiling the costing, not more than one or two redrawings can usually be made; and then the metal is apt to be so brittle near the edge, where most of the flow has taken place, as to render it unfit for other bending operations, such as curling, &c. By one redrawing it is practicable to obtain a tin plate cup or box of a depth about equal to its own diameter. Here, again, the proportions depend, of course, upon the quality of the metal and its thickness in relation to its diameter.

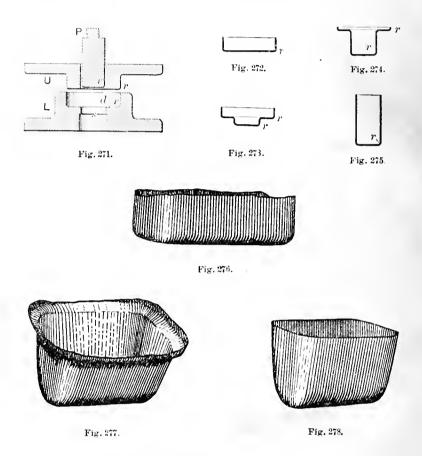
In Fig. 276 is shown a square steel box with rounded corners, as drawn in its first operation. In Fig. 277 is shown a second operation, as it was redrawn, and in Fig. 278 a third, making it into a complete elevator bucket. In this case the last operation was not, properly speaking, drawing, as the edge was trimmed and at the same time turned upward by being forced through a die, without reducing the diameter of the body, and, therefore, with no chance to use a blank holder. This is very difficult work to make—as the writer discovered some years ago when

developing various sizes of these buckets, as a new article of manufacture.

In Fig 279 is shown a pair of deepening dies, where the cup, Fig. 280, is placed over the lower die in an upside down position. It is therefore turned partially inside out in being brought to the form shown in Fig. 281. In Figs. 282 and 283 are shown subsequent deepenings which will explain themselves With plain shapes of this kind I have never been able to find out that there is any particular advantage in thus revers lng the work, although in some cases it is desirable for special reasons. One disadvantage, where the reduction in diameter is small, is that the lower diemust be thin, radially, and is therefore liable to burst should an extra thick sheet get in

An amusing circumstance connected with this last named process is that after

A modification of a deepening operation proper is shown in Fig. 292, where the broaching process is combined with the redrawing. The word "broaching" has here a very different meaning from that given it by the machinist, who applies it to the process of forcing a piece of metal through a lower cutting die, or pushing a punch through a hole, thereby shaving it down to a given size, and really performing an operation analogous to planing or slotting. In cases where he uses male or female broaching cutters, having a series of teeth following each other and each taking off its own chip, his work more nearly resembles milling. In relation to sheet metals the word means amashing the work thinner by forcing it through a space between punch and die which is too small for it. This in itself is, of course, very similar to some kinds of



PRESS WORKING OF SHEET METALS.

being in common use in various factories for a number of years, somebody patented it in this country. It is true we cannot expect the Patent Office officials to know everything that is happening in the world, but possibly an occasional tour, at the Government's expense, among such plants belonging to the great industries of the country as pertained to each visiting examiner's porticular kind of work, would be an excellent investment of the people's money.

In Figs. 284 to 286, inclusive, are shown the different stages of the work performed in a similar die to that last described, but with the difference that the cup, Fig. 284, was left with a flange upon it in its first operation. This flange could not, obviously, be very wide, there being nothing to prevent its wrinkling as it gradually crawla upward upon the lower die. The process la sometimea useful with thick metals and small diameters to produce auch work as Fig. 286 in the final operation.

tube drawing, which again is the same as wire drawing, if we imagine the mandrel to be a part of the tube. In the case in question a reduction of diameter is being made at the same time as the thinning of the metal is taking place. This is much practiced in car-tridge drawing, especially where it is desirable to keep the end or bottom of the work of the original thickness, as shown in the picture. When done, the bottom remains of as much greater thickness than the sides as happens to be required, and as has been arranged for in choosing the thickness of the sheet. In small work of this kind the use of a blank holder, or upper die, U, is abandoned after the first one or two draws, as the metal is reduced so little in diameter in proportion to its thickness that the wrinkles have no chance to form. Even if incipient wrinkles do form they are quickly crushed out again as the metal is aqueezed somewhat thinner.

In some large work, such as varlous

kinds of pans having considerable taper, a kind of upper die termed a vee blank holder is sometimes used in a redrawing operation. This blank a redrawing operation. This blank holder outside is of the same shape and size as the punch which drew the first operation, but is cylindrically hollow inside, for the punch of the second operation to pass through it. Thus the wrinkles are held from forming in a conical zone constituting the upper part of the body of the future completed pan, rather than in a flat flange, as is usually the case.

In Fig 293 is shown the first operation (seing ordinary drawn work) and in Fig. 294 the accord operation of what is known as a "rim cover," such as is used for pots and other utensils.

body at b, thus forming a pitcher-like untensil, as shown. This bulging out-ward might possibly be done with certain forms of expanding dies, but is usually performed by a spinning operation.

In regard to the kind of press best adapted for the deepening operations just treated of, it may be said that such a machine for many of the later opera tions is usually supplied with the single action ram, the chief characteristic being its unusually long atroke. Of course, where the stroke and power are sufficient any ordinary press will do, and no very great accuracy is required. In some cases such presses are made with an abnormally long stroke, arranged to adjust to any amount de-

The com. . of the question adjust themselves equilibrium.

## New Publica.

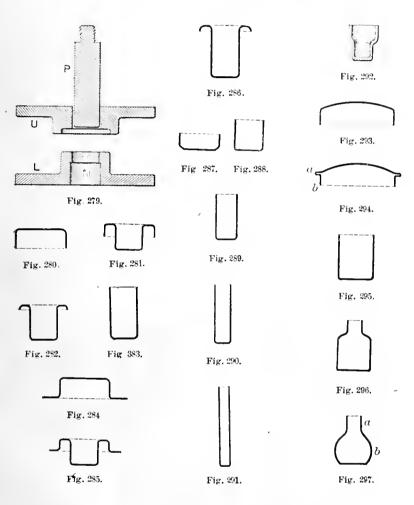
THE ENCYCLOPEDIA OF FOUNDING.

DICTIONARY OF FOUNDRY TERMS USED IN THE PRACTICE OF MOLDING By Simpson Bolland. Size 71\(\frac{7}{2}\) x 5 inches; 535 pages. Published by John Wiley & Sons. Price \$3.

This work, in a great measure, sup-This work, in a great mount of plies a deficiency which has long exous terms used in foundry parlance are well defined and the different implements necessary to a well organized foundry are clearly explained. The metala most used in founding are treated fully with the possible exception of cast iron, which does not have the space devoted to it that its prominence warrants. The author appreciates the important part aluminum is to play in future founding operations, and has given much valu-sble information on the subject. The new applications and daily improvements in the manufacture of this metal render it impossible to keep its literature up to date. The value of chemistry to founding is set forth at length under the heading "Analysis." It would have greatly enhanced the value of the author's arguments had he seen fit when speaking of cast iron to give the proper analyses of irons which are suitable for various purposes, thereby giving foundrymen not versed in chemistry a basis on which to work. Such important subjects as sands, fuels and cupolas could have received more com-plete treatment and thereby add to the value of the book. Venting receives much attention and the information conveyed is valuable. While the references are very full, yet the ordinary reader would be greatly helped by a more complete treatment under one heading. The article on cupolas may be cited as an instance. The list of references is longer than the article itself. Under the title of "Technical Education for the Molder," the author seems to see the source from which the ranks of skilled mechanics are to be filled. It is an acknowledged fact that the number of skilled mechanics has been greatly reduced; but a well organized apprentice system, as suggested by Mr. Cribben in his paper read before the recent meetof the Stove Manufacturers' Association, would seem a much more fessiciation, would seem a much more feasible plan by which to increase the number of skilled workmen, thereby compelling the selection of foremen from their ranks. It is scarcely to be expected that any increase in the efficiency of the mechanic will prevent the "employment of an educated superintendent," as mentioned by the author as being necessary in some instances, but rather will compel the manufacturer to seek such services. Notwickstanding the criticisms it has seemed proper to the criticisms it has seemed proper to make, the book will be an acquisition to any scientific library and be of great assistance to all employed in founding operations.

Lightning struck the mill building occupied by J. F. Lewis & Bros.' lead works, Thompson and Huntington streets, Philadelphia, on June 30, causing \$6000 damage.

Brooklyn, N. Y., gas companies have reduced the price of gas to 90 cents per 1000 cubic feet.



PRESS WORKING OF SHEET METALS.

The bead or rim a has been bulged outward by the simple process of pushing the top down with a plain concave die, the lower edge of the metal being properly confined in a lower die. This is, of course, not a process of drawing at all, but is simply given here to illustrate an interesting operation following the work

of the drawing press.

Another useful after process applied to a deep drawn shell of comparatively thick metal of the shape of Fig. 295 is practiced by reducing the upper end and thus forming it into a metallic bottle, as in Fig. 296. This reduction is sometimes done entirely by spinning, but can also be done by a series of dies forced over the neck one after another, the body of the work being properly confined. Some cartridge shells are re duced in this way at the open end. In Fig. 297 is shown a somewhat similar reduction of the neck at a, together with the bulging out of a part of the sired, after the method of a planer table, the ram being driven through the medium of a rack, screw or other suita

ble mechanism.

The future possibilities of the interesting process of drawing and redrawing metals seem to me very great. Much has been done in comparatively recent times in the way of developing the various operations involved. We can, even now, manage articles as large as soda water fountains and kitchen boilers, drawing them cold, by the processes above described, from ordinary flat sheets To draw large steam boilers in the same way would be simply a matter of enormous first cost for the plant. Many irregular shaped articles are also now drawn, such as wheelbarrow bodies, sinks, mangers, &c. These processes simply need amplifying to produce bathtubs and boats. How large objects it will pay to attempt the way I will not worken to produce this way I will not venture to predict.

# MBING and GAS FITTING.

## Gas and Gas Fitting.—II.\*

BY J. W. HUGHES.

The Distillation or Manufacture of Coal Gas.

The principal processes employed in the manufacture of ordinary lighting gas, distilled from coal, are the heating of the coal in retorts for the purpose of driving out the gas, leaving in the retort what is known as coke; next the purification of the gas by passing it over and through certain substances, the principal of which is milk of lime. By these methods, known as washing, scrubbing and condensing, are removed from the gas certain substances that would aeriously affect its usefulness as a lighting medium, and at the same time these substances are recovered and put to proper use. After the gas has been purified it is passed into large storage purified it is passed into large storage tanks called gas holders, from which it is drawn, or rather forced, into the various pipes, called mains, by means of which it reaches the consumer at the most distant point. It will not be necessary for the purpose of this article to go minutely into the details of the manufacture or distillation of coal gas. Any reader who desires to thoroughly understand it can obtain all necessary information from the standard ency-clopedias, or any of the numerous special publications treating on the subject.

But an old and simple experiment may be tried that fully illustrates what takes place in the retorts of the gas works. Take an ordinary elay tobacco pipe, fill the bowl with fine particles of pipe, fill the bowl with fine particles of gas coal. Then seal or cover the coal with fire clay. Next insert the bowl of the pipe into the fire, and in a few minutes apply a lighted match to the stem of the pipe, when the gas being distilled from the coal in the bowl of the pipe, will ignite. This is, of course, gas in its crude unpurified state but in gas in its crude, unpurified state, but in just about the same condition as coal gas was when originally used for light-

ing purposes.

The washings and other treatment that the gas undergoes in a modern gas the result of practical expe works & sted by the art of the chemrience. ct of the gas engineer being 1 illuminating medium free ist, the to obte and smell, and the chemiat what the substances were from a to fine rouble to the engineer, and that g to put these materials to com-Having made the gas and mercial L c. purified it, the next question is to store it for use, as gas is not required in the same quantity in the daytime as at night, and it would not be pessible to keep banks (sets) of retorts working sufficiently to supply the demands of the consumers at night. This is accomplished by passing the gas into the gas holder, sometimes called gasometer. These gas holders are immense inverted cups made of sheet iron and working up and down in slides, the lower ends

The pipes leading from the gas house Copyrighted, 1894, by David Williams.

of the holder being immersed in water.

where the process of manufacture is being earried on convey the gas into the holder above the water, and as the gas enters it causes the gas holder to rise until it is full, or raised up to its limit The main distributing pipe or pipes, which are taken from the holder, also project above the water, which forms the seal and keeps the gas from escaping, the pressure being regulated by a system of weights and pulleys.

Formerly when the holders were made of very heavy iron plates it was neces sary to relieve the pressure by balance weights, but the modern holders being comparatively light, it is sometimes necessary to weight the holders in order to give the desired pressure. It is very essential, in order to have perfect consumption and light at the gas burner,

The pit is generally made of brick and cement, and in cold climates the whole arrangement has to be housed in to prevent freezing of the water.

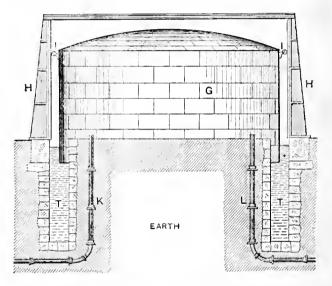
The Relation of the Plumber to his Client and the Community in which He Lives\*

BY WILLIAM P. MOFFAT

In selecting this subject I do not anticipate bringing anything especially new to your notice, but am desirous of so placing it before you that it may possibly assist some in feeling that the community of which they are a part are dependent upon them for something more than is represented by the dollars and cents which constitute "the plumbers' bill."

I desire to present the plumber first and

I desire to present the plumber first, and would say that very many whom I have



Gas and Gas Fitting .- Fig 1 .- Section through Gas Holder.

that the pressure should be constant This can be and of the right force. attained, to a certain extent, by adjustment of the holder at the works, but as coal gas is lighter than the air it in coal gas is lighter than the air it in creases in pressure according to hight at the rate of about one tenth for every 10 feet. That is, if gas is de livered into a building at the lower story at, say, four-tentha pressure, it will be five-tenths pressure 10 feet above the lower atory and go on increasing according to hight.

ing to hight.

The same disturbance of pressure takes place if gas has to be distributed on levels above the gas works. For this reason some form of pressure regthis reason some form of pressure reg-ulator is necessary in high buildings, or in buildings situated on high ground. Of these governors and the necessity for them we will treat at greater length in a future article. The accompanying sketch, Fig. 1, shows a section of a gas holder. G, gas holder; H H, guides or steadying frame, on which work rollers I I, which are attached to G. TT, tank or pit filled with water into which G descends when emptying or empty; K, pipe entering holder above water line for letting gas in—that is, the charging or filling pipe, while L is the discharge or main distributing pipe.

become acquainted with do not thoroughly appreciate their position. They have not had the opportunity of graduating from any college which can lend brilliancy by attaching a haudle to their names, and so they come humbly rendering services which are vastly out of proportion to the recompense they receive, and are not properly appreciated by their patrons. How can this be remedied so that those of our profession may receive the honor and respect which is properly due them? Much of this lies with the plumbers themselves and the pecuniary necesities which surround them, and I therefore refrain from harsh criticism when I find some one has sold his "birthright for a mess of pottage."

#### UNDERBIDDERS.

UNDERBIDDERS.

I acknowledge that there are those in all professions who will underbid to secure the patrons of their fellow craftsmen, and it would seem at times un our calling as if the necessity or the desire for the almighty dollar was of more value than the honor of doing right because it was right, of standing up for a principle that experience has taught was of very much more value to those who through ignorance of its value would give their patronage to a lower hidder; then learn, through the loss of health or loved ones, that there was something that the specification did not specify, and which now—alas—cannot be bought. It is this honor, this determination to so adjust the sanitary arrangements of the commu-

<sup>\*</sup> Essay presented at the Detroit convention of the National Association of Master Plumbers, June 19-21, 1894.

nity in which we live that we shall be blameless, and that money shall not tempt us to do a thing that we know is in any way dangerous or may become so by the usage of the ignorant. It is this staud for the right which elevates the profession which you have selected for your livelihood. It is this determination to do your work right which elevates you in the eyes of the community, and will make you sought after, and it is this same quiet persistent purpose that is sure to bring its reward. Am I setting too hard a task when I ask you to ponder this well, while the unscrupulous reap the harvest? I think not, for "Thou art thy brother's keeper," and the lives of many are intrusted to your care. If you enjoy the confidence of your customers you can guide them in the selection and arrangemany are intrusted to your care. If you enjoy the confidence of your customers you can guide them in the selection and arrangement of the plumbing in their dwellings, the quality and design of the goods best adapted to the place. Do not be afraid to give the true reason why your selection is the best for the place, but above all be positively correct as to theory or practice in the statements you make, explaining in the plainest language possible why this or that fixture must be so placed. Do not think this is all thrown away because they have not made it the study of their lives and cannot properly appreciate it. You may make a mistake. They may have absorbed some sauitary ideas and tha fact that you are thoroughly posted in your own profession will inspire them with the confidence that is due you, and is the only true advertising that is admissible in your calling. For "from the abundance of the beart the mouth speaketh" and it would be just about impossible for your customers who believe in you to keep it all to themselves. Just here let me deviate a little and say a word about advertising.

#### GOOD BUSINESS MEN.

We all want to be known as good reliable business men, and there is nothing so thoroughly good as an advertisement as work which is thoroughly satisfactory to our customers. I knew of a plumber who

ousiness men, and there is nothing so thoroughly good as an advertisement as work which is thoroughly satisfactory to our customers. I knew of a plumber who finished a building for his customer and the first repair was five years after and amounted to \$1.50. Another gentleman told the writer be had the best plumber in the city, and meant it. Such advertising you never see in the papers. Another example was the modesty of a great physician. He simply had his name P. Mix. That was sufficient. His work like his name was well known to those in need of his services. I do not say anything against the proper placing of your name before the public, but the assumption of titles seems to be a misrepresentation of facts.

To return to our subject. Allow me to explain just what I mean by "positively correct." I hope none will misconstrue this to such an extent that the plumber's preference for certain lines of goods shall make his wishes an intrusion. There are many who presume to know just what is the best and the best way to arrange them, so much so that you may feel that all your experience has gone for naught; that a young man who can get up a good design in decorating a dwelling will place fixtures in inaccessible places and specify arrangements which will disgrace you if carried out. Now is the time for you to lay down the principles upon which fixtures in other parts of the house may affect these; the danger there is in doing as directed, and it is necessary that your statements are positively correct and your language so clear and forcible that you shall carry everything before you. Do not think for a moment that if they do not readily accept your argument and still adhere to having an improper arrangement of the pipes, fixtures. &c., you are released from the responsibility of your work; not at all. If you have done the work improperly and bad results follow, you will be blamed and injured by it. It will not make any difference what you may say about it, there is your work and the bad results Do not do it Keep you old pipes and put in new ones correctly. You may think he was well punished, but he used it unjustly against the plumber 15 years afterward, not stating that he would not allow new ones to be put in, although

the probable results were plainly stated by the plumber. Dismissing this unpleasant part of the subject let us look at our pro-fession from the clients' position. When they send for a plumber they expect to have skilled labor.

#### LEGISLATION.

LEGISLATION.

The Legislatures of a number of our States have done all they could to guard the people against the blunders of the ignorant, not allowing a man to practice until ha was duly qualified. The people knowing these things have a right to expect none but the best class of work, put together in such a way that it will give satisfaction. This is not always done. I have lately seen three houses that surely had less than 10 pounds of solder in the whole job. All joints that could be made as cup joints were so made, even to branch joints, and so poorly done that I should have expected to see them all leak. This is certainly not skilled labor and should be condemned wherever found. A person employing licensed and registered plumbers is supposed to get those who are responsible, and they who are such should look carefully to their workmen, that all work is put together in a thorough and workmanlike manner. There are many things that are troublesome and will occur repeatedly and are an aggravatiou to the household and a call to do such repairs should be explained to the owner, so that when the familiar expression "leaks in the same place" accompanies the order, you are prepared with the other equally pleasant "I told you so."

Both the above expressions are better unsaid, as they do not tend to good feeling, and repairs are not the class of work that

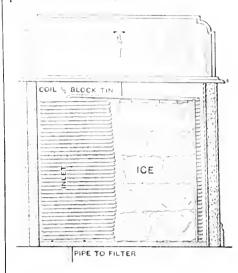
Both the above expressions are better unsaid, as they do not tend to good feeling, and repairs are not the class of work that are calculated to increase especially the value of the property of your client. Although it may save him damages, it is money spent usually to put the property back in a proper condition, as it was supposed to be before, and he is that much out of pocket.

In closing, let me ask you to faithfully adhere to a principle to do the best work possible, and let nothing turn you aside from that purpose.

#### Large Capacity Water Coolers.

The comfort derived from cool water for drinking purposes has always been appreciated, but at the present time it is considered indispensable in the hot seasons. The expense of the ice bill when ice is used for cooling purposes reaches a considerable figure in factories, hotels and restaurants. Some of the devices used to reduce this expense and to furnish an ample aupply of water are shown in the accompanying illustrations. Fig. 1 shows an apparatus built for use in a large restaurant in New York, where about 6000 people are served within the space of two hours at midday. It was built by E J. Brady of 58 Warren street, New York, and consists of a large box lined with tinned sheet copper, the inside dimen-sions being about 12 inches wide, 30 inches long and 30 inches deep. In the box a coil of 1 inch block tin pipe was used, through which the water passed. This was wound around the box until about 150 feet of pipe was used. Water was brought in from the street main to a filter, and after passing through the filter was connected to the coil at the top. The water after passing through the coil of pipe was conveyed through a pipe to a faucet where it was drawn as required, and in the restaurant ran almost continuously at midday. In order to protect the pipe from being crushed by the ice that filled the box a wooden frame work was placed in front of the coil of pipe. It is said that from 25 to 33\frac{1}{25} per cent. of the ice bill was saved by this method of cooling the water over the previous method of having large pitchers on the restaurant tables fitled with small pieces of ice, or the use of a large water cooler into which the ice was placed with the water which was drawn through a

The satisfaction attending the faucet. use of this device has been infinitely greater than that of either of the more primitive methods mentioned.



Large Capacity Water Coolers -Fig. 1. -A Restaurant Cooler.

The second apparatus, shown in Fig. 2, was made by Boyd & Schnaier, 347 Columbus avenue, New York. They placed an icebox in the basement of an

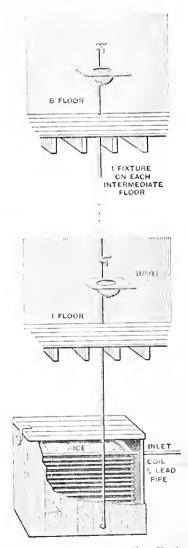


Fig. 2.—Cooler for a Building Having Several Floors.

eight story building in which about 100 hands are employed on each of its floors. The box is about 3½ feet deep, 3½ feet wide and 6 feet long, and has a cover

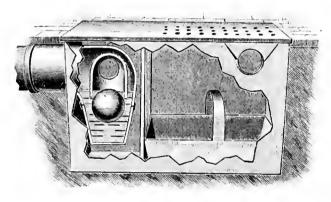
which is secured by means of a padlock after the box is filled with icc. - A bout 300 feet of  $\frac{3}{4}$  inch lead pipe is used in this box, the water from the street main being brought into the top of the coil and the pipe continued from the other end of the coil up to the top story of the building, through the toilet rooms, which are directly over one another throughout. A branch is taken off the pipe in each of the toilet rooms by means of a long faucet, which drips im mediately over the lavatory bowl should a leak occur. The box is made to hold a ton of ice, and the calculation is that when filled on Monday morning and the cover locked down tight there will be no need of replenishing the ice for a whole week. By this means cool water is abundantly supplied the employees as required, there is no danger of the ice being abstracted in small pieces and at the same time the labor of attending to several water coolers is avoided.

## Catch Basin and Back Water Trap.

We present in the accompanying illustration a catch basin and back water trap manufactured by Emmett Martin, Fort Wayne, Ind. The device

illustrated. The later pages of the book are given up to gas stoves and ranges of all sizes and aorts. Water heaters, burners and other goods are noticed; likewise hot air engines, hydrants, &c. Attention is similarly directed to the Climax cellar and cosspool drainer and the Climax Solar water heater, both of which have been described in our columns. Accompanying the eatalogue is a small paniphlet of testimonials, which come from all parts of the country, regarding the Climax gas machine and mixer. These testimonials are dated and signed and speak in high terms of this apparatus.

THE MASTER PLUMBERS' ASSOCIATION OF CHICAGO have issued a very handsome volume entitled "Chicago Master Plumbers' Reference Book." It was compiled by Alexander W. Murray, secretary, and edited by H. W. Culbertson. It is of pocket size, leather bound, contains 92 pages and is beautifully printed and illustrated. The contents comprise the roll of officers for 1894, constitution and by-laws, Baltimore resolutions with amendments, the Chicago apprenticeship system, history of the association, lists of officers for each year, portraits and sketches of presidents, a collection of interesting



Catch Basin and Back Water Trap.

consists of a cast iron basin with an outlet at one end and a perforated removable top plate. A galvanized iron pan is provided beneath this plate to catch and retain sediment, being removable for cleaning. By means of a partition in the basin the solid matter is prevented from entering the trap portion. The device is so constructed that the water from the basin enters through an opening into a tube with a ball float at the bottom and passes out through openings at the end of the basin, 2, 4 and 6 inches in size. To provide against back water, caused by heavy rains, rising of the tide or other means of flooding the sewer, the ball valve is so arranged as to float up and press tightly against the bottom of the inlet. preventing the entrance of water to the cellar in which it is placed. By this means, the maker claims, not only is an effectual back water trap provided, but also a very secure seal against sewer air.

#### TRAPS AND VENTS.

WE ARE INDEBTED to the C. M. Kemp Mfg. Company, Baltimore, Md., for a copy of their catalogue relating to the Climax gas machine and gax mixer. This volume, which has just come from the printer's hands, contains some 50 pages and opens with a full illustrated description of the Climax gas machine, showing it in operation, its different parts and all the details of construction. The Climax gas mixer is similarly

and valuable miscellany on a great variety of subjects of special interest to the plumbing fraternity and a list of the members of the Chicago Master Plumbers' Association. Advertisements are alternated with reading matter through the last half of the work.

Herwood & Ansell is the name of a new firm who have started in the plumbing and tin business at Mount Jewett. McKean County, Pa. They request that plumbing and tinners' supply houses forward them their catalogues.

A VERY APPROPRIATE and at the same time catchy advertising leaflet is a scarlet card bearing the inscription: "This red hot weather makes you feel as if you wanted to be played on by some of Colwell Lead Company's hose."

At the annual meeting of the Board of Health of Camden, N. J., Harry B. Travers was appointed plumbing inspector.

BRINTNALL & FERGUSON. 77 West Chippewa street, Buffalo, N. Y., are one of the newer plumbing houses of the city. They make a fine display of modern plumbing apparatus in their sample room. This firm make a specialty of fitting for both artificial and natural gas, as well as ateam and hot water heating.

THE ZERO VALVE COMPANY, 212 Seneca atreet, Buffalo, N. Y., report that they have sold over 1500 of their Vollmer valves in Buffalo in the past seven months. This valve is used in connection with hopper water closets, and is arranged to waste all the water from the closet above the valve after the apparatus has been used, by which means, it is claimed, freezing is prevented.

Howe & Bassett are one of the large plumbers' and steam fitters' supply houses in Rochester, N. Y. They carry in stock plumbers' pottery, bathtubs and brata work. They also have an extensive line of cast and malleable pipe fittings and pipe, and are provided with mechinery whereby they can cut pipe to specification up to 12 inches in diameter. The Electric steam and hot water boilers of the Electric Boiler Company are made in their plant. Excellent reports have come in from the boilers which were set during the past year. Some of their constructions are in use as power boilers with satisfactory results. The patterns for a larger size of the boiler are completed, and some new features have been added to them.

J. H. Castle, Buffalo, N. Y., was unable to attend the plumbers' convention, to which he was elected a delegate, owing to pressure of business at home. His show windows make a fine diaplay of practical plumbing work, showing enameled baths, water closets and lavatories, all the necessary connections in lead pipes being made with neat joints.

THE ROCHESTER LEAD WORKS, Rochester, N. Y., in addition to making a line of block tin and tin lined lead pipe and solder are making a specialty of babbitt or bearing metals.

EDWARD JOY, Syracuse, N. Y., who makes a specialty of plumbers' and steam fitters' supplies, recently fitted up a new sample room in which he shows the modern plumbing fixtures, prominent among which may be mentioned Mott's enameled bathtubs and Huber's water closets. In addition to this he has a gas fixture showroom from which all that is required for a modern residence can be selected. In his pipe and fitting department pipe can be cut to specification up to 8 inches in diameter, and all the fittings that would be required for a large heating plant are carried in stock.

The water pressure furnished by the water works of the city of Syracuse has been so low as to practically cut off the supply in the higher portions of the city, and the quality has not been all that could be desired. Recently water was turned into the mains from a new system, whose supply is drawn from another source, and a pressure of about 100 pounds is expected to be developed. This will enable persons living on the hills surrounding the city to inatall the conveniences of modern plumbing, which has heretofore been rendered impossible by lack of pressure. It is more than probable that the heavy pressure in the new supply will develop many leaks in the old plumbing systems of many of the buildings, and that the plumbers will find plenty to do in making repairs.

GARVEY & TORIN are one of the wide awake plumbing firms in Rochester, N. Y. In their sample room are shown the different fixtures required in a modern job of plumbing.

C. H. C. MOLLER, PEHR MOLLER and F. C. PHILLIPS have filed the articles of incorporation of the Moller Supply Company. The new company will have an authorized capital stock of \$30,000,

\$20,000 of which will be paid up. It will engage in the plumbing, steam fitting, mill supply and pipe business and will be located at 315 Nebraska street, Sioux City, Iowa.

THE GENESEE AUTOMATIC CLOSET COMPANY, Rochester, N. Y., recently sent 70 of their Genesee water closets to Cleveland, for use on two large lake steamers being built in that city.

The FIRM of William Jameison and Spencer M. Sterns, plumbers, of 3 Caroline street, Saratoga, N. Y., have been dissolved. Mr. Sterns will continue the business and Mr. Jameison will remain in his employ.

ADAM GRAF AND GEO. A. LINTON have formed a pertnership and opened a plumbing establishment on Pear street, Logansport, Ind.

FRANK C. Hock has rented the store room in the Drake Block, Goshen. N. Y., recently vacated by H. B. Levy, and will soon open it as a plumbing, gas and steam fitting and electric wiring establishment.

1. Mc Vov, plumber, has made ar rangements to occupy half of the store now used by D. S. Dunavan, the tinner, on East Front street, Plainfield, N. J.

Breckon & Galle have leased the store building on West Main street, Ionia, Mich., recently occupied by M. L. Steele, and will move their plumbing establishment soon.

JOHN O'KEEFE and C. L. Glennon, Appleton, Wis., have formed a partner-ship for the purpose of doing plumbing, steam and hot water heating. The situation of the new firm is at 880 College avenue.

## The New Tower Bridge.

The recently completed Tower Bridge, the latest and most imposing of all the bridges of London, was opened with great ceremony by the Prince of Wales on Saturday. The new bridge, which is the nearest to the entrance to the Thames River, has been erected for the purpose of relieving London Bridge of a portion of its enormous volume of traffic, amounting to an average of about 25,000 vehicles and 125,000 foot passengers daily.

The Tower Bridge is a double one, a combination of a high level and a drawbridge, the latter feature being rendered necessary by the fact that large vessels ascend the river as far as Londen Bridge. It is composed of two immense piers, each consisting of four hexagonal steel barrels, laced together by a network of lattice girders, the whole being filled in with brick and faced with stone. From the towers stretches a suspension bridge from bank to bank. The midspan is approached on either aide by a steep flight of stone steps, 140 feet in bight; but elevators inside the towers are also used for conveying foot passengers to the upper bridge when the draw spans are open. These latter are on a level with the roadway on the river bank and are technically known as bascules. Each bascule is 100 fect long and revolves on a 21 inch steel bar, When it is necessary to allow large vesscls to pass, the traps are lifted, the short leg of the bascule, inside the tower, being heavily weighted with lead and a space being left in the pier in which the half span ainks when elevated. The bascules are operated by very powerful hydraulic machinery.

## HEATING & PLUMBING.

#### NEW WORK AND CONTRACTS.

THE WORK for heating with steam the school buildings at Glenville and West Liberty, W. Va., has been let to Trimble & Lu z. Wheeling, W. Va.

A. C. HICKEY, 69 South Clinton street, Chicago, is to do the plumbing and sewcrage for the Stone Shoe Mfg. Company, Pontiac, Ill.

THE J. L. MOTT IRON WORKS, 311 and 313 Wabash avenue, Chicago, have lately received a number of orders for Sunray heaters from various points in Iowa.

- F. W. Lamb & Co., 258 Michigan street, Chicago, have the contract for steam heating in the flat building of Evan Lloyd, Forty fifth street and Cottage Grove avenue; also overhauling the steam plant in the American Express Building, Monroe atreet.
- T. C. Poyd. 38 Dearborn street, Chicago, is to do the plumbing, gas titting and sewerage in the building of Mrs. Mary Fourney, 309 Fifth avenue.

THE HERENDEEN MFG. COMPANY, 131 Lake street, Chicago, have the contract for sterm heating and ventilating the High School Building at Princeton, Ill., using two No. 8 Furman boilers.

THE WALCOTT-HURLBUT COMPANY. 175 and 177 Lake atreet, Chicago, have received the following orders for the Siphon Eduction closet range: Hillsboro Bridge, N. H., four ranges; Taylorville, Ill., two ranges for High School and two for Court House; Cedar Rapids, Iowa, two ranges for High School; Necnah, Wis., two ranges for High School.

The John Davis Company, 69 to 79 Michigan street, Chicago, are to install hot water heating plants in the 30 tlat building of Chas. Busby, Indiana avenue and Twentieth street, and in the flat building of Frank Bernhardt, 1623 Fulton atreet.

SEALED PROPOSALS will be received at the effice of the Department of Public Works, Buffalo, N. Y., until July 12, for the plumbing work to be done in Engine House No. 9 and Hook and Ladder House No. 1, at Engine House No. 21 and Ladder House No. 6.

THE PLANS AND SPECIFICATIONS are being prepared for improvements in the chapel of the Ninth Prosperian Church, Troy, N. Y. The estimates include \$3000 for heating apparatus, hot water probably being the method selected.

B. F. STURTEVANT & Co., Boston, Mass., have been awarded the contract for heating and ventilating the new Court House at R.chester, N. Y., the contract price being \$25, 120.

The Maltby & Wallace Company, Urbana, 111, have been awarded the contract for the steam fitting for the new Engineering Building. The contract price is close to \$8000.

THE CONTRACT for the plumbing and steam fitting for Fort Harrison, near Helena, has been awarded to Gould Bros. of Butte, Mont.

C. W. TALCOTT has the job of plumbing for the school house at Rumford Falls, Maine, and F. O. Walker will put in the heating apparatus.

THE NIAGARA FURNACE COMPANY, Buffalo, N. Y., who make a specialty

of the Novelty line of heating apparatus, recently closed a contract with the Buffalo Cement Company for placing hot air furnaces in 25 houses being erected by them. The Novelty hot air furnaces will be used.

HAYES & FALLS, Rochester, N. Y., have the contract for the heating plant in the Memorial Universalist Church at Albion, N. Y. Steam will be used and both direct and indirect radiation.

- E. P. Bates, Syracuse, N. Y., is a heating engineer whose growing business requires him to do work in eithes quite distant from his plant. He recently it stalled a hot water heating plant in the residence of J. J. Hill, at St. Paul, Minn., in which the principal heating maln was 8 inches in diameter.
- T. COSTELLO & Co., Lowell, Mass., have been swarded the contract for heating and ventilating apparatus for the Pond Street Primary School at the price of \$365.
- T. P. AITMIN has taken the contract to do the plumbing and heating of Frank Spencer's new house, on the corner of North Main and Union streets, Manchester, Conn.

Thomas F. Mullen, Scianton, Pa., has been awarded the contract for the illuminating, steam fitting, sanitary and roof work of the new Hotel Jermyn.

THE STATE BOARD OF NORMAL SCHOOL REGENTS advertise for bids for steam heating the Oshkosh, Wis., Normal School.

Nine hundred men were laid off work at the Brooklyn Navy Yard on Monday in consequence of the decision of Attorney-General Olney that the resolution extending the naval appropriations for one month, which had passed both Houses of Congress and received the President's signature, does not include the work being done under "increase of the navy." The vessels affected by the stoppage of work are the turret ships "Puritan" and "Terror," the gunboats "Castine" and "Machias" and the armored cruiser "Maine." This unexpected loss of employment is a great disappointment to the mechanics and laborers, who had confidently expected an uninterrupted season of work during the summer. Workmen in the other Government yards shared a similar experience.

The records of the Bureau of Navigation show that during the first three-quarters of the present fiscal year there were tuilt in the United States and officially numbered 339 wooden sailing vessels, of 24,271 tons, and 221 wooden steam vessels, of 29,948 tons. During the same period 3 iron or steel sailing vessels were built, of 4749 tons, and 27 iron or steel steam vessels, of 26,920 tons. The sailing vessels aggregated 342 in number and 29,021 tons in measurement. The steam vessels aggregated 248 in number and 56,869 tons. The entire number of vessels built and numbred was 590, the tonnage being 85,890.

In order to avoid undue competition and to maintain prices, a combination will, it is said, be formed by nearly all the California fruit canners, under the name of the California Cannery Company.

According to present indications, the prospects for fair average crops are reported as good in Canada.

## STEAM AND HOT WATER.

#### The Yale Water Heater.

A new water heater is illustrated here with which has been brought out by the J. H. McLain Company of Canton, Ohio, who have branch offices in Bos-ton, New York, Chicago, Denver and San Francisco. The Yale is an addition to their line of house heating apparatus, being intended for heating small greenhouses, stables or cottages and for heating water for domestic purposes in hotels and apartment buildings. Ex-

### Greenhouses on Wheels.

Agriculturists generally, and horticulturists in particular, whether ama-teur or professional, says the London Pall Mall Gazette, will be glad to hear of an important innovation which is being introduced by the Horticulture Traveling Structures Company. The novelty of the idea consists in the green. houses, or plant protectors, being provided with wheels constructed to run on a permanent or temporary rail track,

fected, as the houses run so lightly that one of, say, 15 x 12 feet can be instantaneously moved by one man, so that advantage can be taken of even a passing shower. Ground, moreover, undergoing cultivation by the aid of one of these structures is periodically exposed to the action of sun, air, rain and frost, which are most destructive to the parasitic fungi, bacteria and even insect pests, which thrive in the close and moist conditions of the ordinary fixed structures. The hot water apparatus moves with the structure, and thereby saves the cost of extra piping and boilers; and among the many other advantages claimed by the company for their patents, two may be cited which will be readily appreciated by all classes —i. e., that being movable, no doubt can arise that they are tenant's fixtures, and consequently they do not entail increased assessment for rates and taxes.

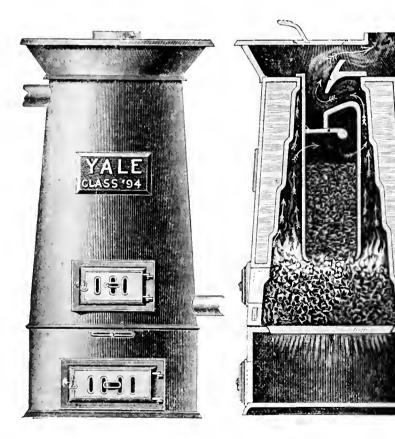


Fig. 1.-General View of Heater.

Fig. 2 -Sectional View of Heater.

### THE YALE WATER HEATER.

terior and sectional views are here shown in Figs. 1 and 2. The sectional shown in Figs. 1 and 2. The sectional view discloses the magazine attachment, which, however, if desired, can be taken out, making a surface burner of the heater. The magsz'ne is provided with a damper which closes automatically when the magazine is filled with coal, thus preventing combustion of the coal in the magazine. It will readily be seen that an excellent heating surface is obtained by constructing the inner walls of the fire chamber in a series of projections, making the heater much more effective than where the fire chamber presents a smooth surface to the flames. The grate and ash pit are the same as those used in the company's Humbert heater. Three sizes are made, which are felicitously styled class '93, class '94 and class '95

by which means the same structure will perform the work which would by the old system require a series of such shelters, thereby effecting an enormous saving in original cost and ultimate maintenance. For instance, a house which under ordinary circumstauces would have lain idle during a large portion of the year will, by using one of the structures referred to, be in constant use for protecting and cultivating crops, and in the case of growers who, by the pressure of competition, have been forced to a coustant use of their houses, instead of having to carry in batches of plants from the open air, there will be a vast saving of time and labor by s mply moving the whole structure, as supplied by the company, bodily over the plants as they stand. A great saving of labor in watering is likewise ef-

#### HEATING NOTES.

THE HEADQUARTERS of the Executive Committee of the Master Steam and Hot Water Fitters' Association of the United States for the ensuing year will be at Room 732 Cable Building, Hous-ton street and Broadway, New York, to which all communications should be ad-

THE TRADE will be sorry to learn that E. N. Squires of the New York Cen. tral Iron Works met with an accident while returning from New York, where he attended the meeting of the Master Steam and Hot Water Fitters' Association of the United States. Mr. Squires injured his ankle, and it will be some weeks before he will be able to go about without crutches.

M. MAHONY, Troy, N. Y., continues to publish his monthly calendar cards, the one for July, which is just at hand, being overspread by the American

THE ROYAL STEAM HEATER COM. PANY, Gardner, Mass., are occupying their new huilding, 40 x 60, three stories high. This will contain a well equipped machine shop, and be used in connection with their foundry for the manufacture of Royal steam heaters.

THE SYSTEM of steam disinfection for clothes, &c., of contagious patients, as designed and applied by Blake & Williams, 186 and 188 South Fifth avenue, New York City, has been adopted by the Board of Health, city of Brooklyn, to be erected in the hospital building at Flatbush, L I. The same system is in operation in hospital buildings for health departments in other cities, and in buildings for the State of New York.

THE J. H. McLAIN COMPANY, Canton, Ohio, are sending out a catalogue of steam and hot water heaters, inclosed in embossed covers, showing a hand-some design in gilt, red and black with a light blue background. On the front Canton, Ohio, and branch offices at Boston, New York, Chicago, San Francisco and Denver. The printing is in two colors, the cuts and display matter being in handsome garnet, while the letterpress is in a pleasing tint of green. A view of their plant is shown, followed by illustrations of the Humber water heater, with sectional views showing the construction and operation; the Hartford hot water and Cambridge steam heater, with sectional cuts, as well as of the Sandow and Yale water heaters. The catalogue also illustrates their Oxford hot air furnace, which is provided with an air blast for carrying hot air to the top of the fire pot to aid in consuming the gases generated at that point.

THE IDEAL BOILER COMPANY, Chicago, issue a notice to the trade, under date of June 26, that they have secured the services of Herbert E. Jones to represent their line of Ideal bollera in New England. Mr. Jones was formerly manager at the Boston office of the American Boiler Company and will have his headquarters at Boston as soon as a suitable location can be found.

THE BART. RYAN HEATING, VENTILATING & PLUMBING COMPANY have been incorporated at Chicago with a capital stock of \$20,000, the incorporators being Bartlett Ryan, Cornelius Ryan and Charles Smith.

HARDING BROTHERS, Sioux Falls, S. D., according to an item in a local paper, had the honor of making the first steam boiler ever put up in South Dakota. It is a 40 horse power boiler and will be placed in Gilbert's new building on Philitpa avenue.

THE NIAGARA RADIATOR COMPANY, Buffalo, N. Y., are erecting a manufacturing plant at Tonawanda, a few miles from Buffalo, where they expect to have an annual productive capacity of 1,000,000 feet of radiation. Their plant interesting from the fact that a number of new features are introduced in the methods of turning out both direct and indirect radiators.

The Brotherhood of Locomotive Engineera will not join the atrike ordered by the American Railroad Union. Chief Arthur, of the Brotherhood, has telegraphed the following laconic message to the engineers: "Stick to your engines." Grand Chief Sargent of the Brotherhood of Locomotive Firemen has also issued a statement intimating that his organization can take no part in the Pullman boycott, as the laws of the Brotherhood do not allow it, and he, as its chief executive officer, has no authority to order a sympathetic strike. He further warns Brotherhood firemen who join the strike that they must look to the A. R. U. for relief and not to the Brotherhood.

East bound passenger steamers leaving New York are crowded with both cabin and ateerage passengers. Agents of all the transatlantic companies say that this year's passenger traffic to Europe is unusually heavy, and some of the lines are said to be enlarging their carrying capacities in consequence.

The Manhattan Elevated Railroad Company are experimenting with different electric motors with the view of using electricity for traction in place of steam. They will probably await the outcome of the Chicago Elevated's experiments in this direction before finally deciding on the change.

## Electrically Driven Ventilating Fan

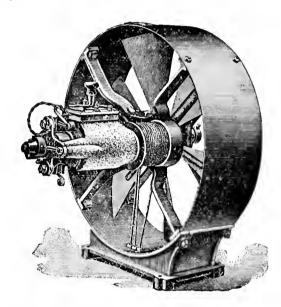
The Huyett & Smith Mfg. Company of Detroit, Mich., make a fan designed to be driven by either a pulley or electrically, by means of what is known as the Fuller patent electric motor, which is provided with a three-speed switch. The pole pieces of the motor being parallel with the fan shaft, the spider or arms of the fan frame being utilized as a keeper of the two magnets, the breaking space of the poles is brought into a vertical position, removing all danger of short circuiting the magnetic lines of force across the poles, which is done by the fan blades in the use of an ordinary motor. The commutators are built of numerous sections thoroughly insulated with mica, which is an additional safeguard against short circuiting and "burn outs," from which no difficulty is experienced in the use of

Woodlawn avenue and Fifty-eighth street.

Markin & Co., Incorporated, Allegheny, Pa., have just installed a complete outfit of machinery for turning out plain round and corrugated conductor pipe from 2 to 6 inches in diam eter and in 10-foot lengths. This firm have considerable business on hand for conductor pipe, eave troughs, skylights and other goods which they manufacture

The John Siddons Company, Rochester, N. Y., make a specialty of architectural copper and galvanized iron work, and tile, alate, metallic and cement roofing. They occupy a large building and devote some of their time to the manufacture of sheet metal work for heating and ventilating plants.

The St. Paul Roofing, Cornice & Ornament Company, Sou h Wabasha street, St. Paul, Mian., favor us with



ELECTRICALLY DRIVEN VENTILATING FAN.

this motor. This combination of motor and fan are kept in stock with motors wound for 110 and 220 volt currents; they are also furnished wound for any voltage.

### FLASHINGS.

The Jersey City Galvanizing Company have just placed machinery in their works for the manufacture of riveted sheet iron piping, plain and galvanized, and are now making a special feature in the production of house leader pipe at a low cost to the buyer. They have also the most approved machinery for corrugating, crimping and curving sheet iron for roofing and architectural work, as well as facilities for general galvanizing business. The company are unusually busy for this time of the year and full of orders.

Among the contracts taken by Thomas Allen, proprietor of Al'en's Cornice & Corrugating Works, 422 and 424 West Randolph street, Chicago, can be mentioned the following: Red slate rooing and copper work for residence of W. C. Foley, Boulevard place and Grand Boulevard: red slate roofing, copper and galvanized iron work for residence of W. S. Forrest, 3264 Groveland avenue; late roofing and galvanized iron work for residence of Mrs. M. L. Freeman,

a large advertising card such as they are now distributing to the trade, calling attention to Pruden's patent slip joint siding plates for store fronts and building walls which they manufacture. They also make sheet metal roofing and siding, cornices, skylights, steel brick, ceilings, &c.

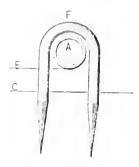
Thomas Talbott, Syracuse, N. Y., is engaged on a \$25,000 contract for furnishing the steel roofing and galvanized iron cornices for the Government buildings at Plattsburgh, N. Y. One of his recent contracts was for the Matteawan Asylum, at Matteawan, N. Y. Sixty-five tons of sheet iron were used in this work, 25 being required for the roofing and cornice work, the remaining 40 tons being employed in the cold air inlets, radiator boxes, heating flues and ventilating shafts to the roof.

McGraw Brothers, with offices in both Buffalo and Rochester, N. Y.. make a specialty of the Medal brand wire edge ready roofing. It consists of a very durable felting, protected by water proof material, and having wire placed in the edges, giving, it is claimed, great strength, and at the same time permitting the making of secure lock joints and fastening at the laps. It is claimed to be fire proof, and is said to stand for years without of linseed oil.

# THE LETTER BOX.

#### Staple Driver.

From W. N., New York.—We recently put up some copper tubing on the outside wall of a building, the tubing being fastened by means of staples, driven into the mortar joints of a brick wall. A, in Fig. 1, and B, in Fig. 2,



Staple Drivers .- Fig. 1.-Staple and Tube.

represent the full size section of the tubing which was used, and the staple shown in Fig. 1 indicates the size which was required to fasten the tubing. We first loosened the mortar



Fig. 2.—Bent Staple.

sufficiently to allow the staple to enter the joint about \$\frac{a}{5}\$ inch, and then with successive blows with the hammer against the point F of the staple, Fig. 1, it was found that instead of the

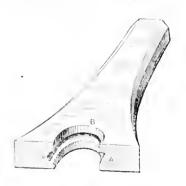


Fig. 3.-Staple Driver.

staple entering the joint it would spread out as shown at H, Fig. 2. To avoid this we had a tool made of steel, as shown in Fig. 3. which for the want of a better name I should call a "staple driver." The illustration in Fig. 3

represents it one half full size, and as will be seen it tapers to an octagon at the top. The curve shown at B should be made a little smaller than the size of the staple used, while the groove shown from A to A should be cut so that the staple will go in casily; then, having the staple slightly fastened in the joint, as before explained, and using the staple driver and hammer, the staple can be driven in the wall with ease and still retain its original shape. In practice two sizes of staple drivers are used, one where the curve B, F'g. 3, will be cut out so as to reach down to line C, Fig. 1, and then after the staple is driven as far as possible the smaller size, as shown in Fig. 3, was used, which brought the staple tight against the tubing and flush with the wall line, as indicated by E, Fig. 1.

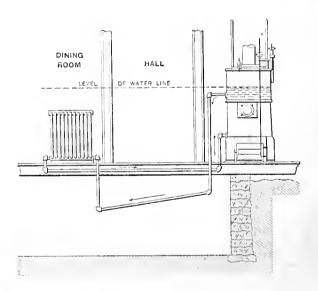
## Hot Water Heating from Steam Boiler.

From W. H. Page, Norwich, Conn.— Seeing the letter of "Rex" in The Metal Worker of May 19, I send you a sketch of a hot water radiator heated from a

#### Choked Water Backs.

From W. D. A., Fargo, N. Dak.—
Having read the letters in The Metal Worker on choked water backs, would say we are troubled here somewhat with alkali in water backs, which forms a coating almost as hard as stone, and the only remedy we have found is to put in a new coil of water back. In one case I found a 2 inch coil in hotel range so filled with this hard alkali substance that there was only a \(\frac{3}{2}\)-inch opening left for the circulation of the water. It sometimes would be really dangerous to use the coils.

The Columbiau International Colonization & Improvement Company have been organized and incorporated under the laws of Louisians, with a capital atock of \$5,000,000, for the purposes of "building up South American countries"—something of a Herculean task—"and establishing closer trade relations with them." The company have, it is said, as their initial operation purchased several thousand acres of very fertlle rolling land in Rio Hacha dietrict, on the Cana River, in the republic of



Hot Water Heating from Steam Boiler.

ateam boiler. The dining room in which the radiator is placed is on the same level as the basement in which the steam heater is located, and as there is a hallway between the two rooms it was necessary to run the pipes as shown in the sketch. A hole was drilled in the edge of one of the sections of the boiler below the water line and the pipe taken cut, then dropped down with a strong pitch, as it had to pass under a timber; then it rose directly up and connected with the bottom of the radiator at one end. The return was taken from the opposite end of the radiator and back to the boiler, connecting at the regular return. All of the building above this floor is heated with ateam. I could send you sketches of other jobs, but they are so similar to the one illustrated that they would hardly prove of interest.

Colombia, which they propose developing into an important trading and agricultural settlement. Piers and a railroad are to be built and a line of steamers chartered. The headquarters of the venture are at New Orleans, from which city most of their capital has been drawn, A number of prominent and influential Louisianians are said to be interested in the scheme.

Late advices received from Madrid by the State Department indicate that the proposed increase in the Cuban tariff is unlikely to take effect before July 20. It is, moreover, considered extremely doubtful at the Spanish capital that Spain will abolish the existing reciprocity arrangement with the United States for several months, if indeed the whole matter is not dropped altogether.

# TIN PLATES.

#### SCRAP.

THE TIN PLATE WORKS AND ROLL-INO MILLS of the St. Louis Stamping Company, St. Louis, Mo., are reported as being full of work on material for home consumption and on outside orders. The company have 18 tinning acts in active operation, producing a full line of bright charcoal and coke plates and roofing ternes.

E. G. EDWARDS of Swansea sailed from New York Thursday, July 5, for France on his way to Russia, where he has recently introduced the Edwards patent tinning apparatus.

THE TOTAL NUMBER of workers in the tin plate mills of Great Britain in 1891, according to the census returns for that year, recently published, was 46,240, of whom 39,702 were men and 6538 were women and girla.

A FOURTH OF JULY PUBLICATION OF the American Tin Plate Company of Cincinnati, Ohio, is a card with a cartoon upon it showing the American Eagle carrying off the British Lion, the latter being held down by a caricature of the Chief Magistrate. A red, white and blue ribbon is a further decoration of the card.

THE 36 BOX RULE QUESTION is still giving great trouble to British tin plate There are signa, howmanufacturers. ever, of a weakening on the part of the mer in some quartera. The workmen at Phillip's Lion Works, at Mantyglo, Monmouthshire, have offered a con-cession of 15 sheets per box till October next, which offer has been accepted by the management; and those at the same proprietors' Abertillery Works, at Newport, have agreed to a concession of 10 sheets per box for aix months. Efforts are being made by other manufacturers to arrive at similar arrangements with their men, but for the most part unauccesafully.

THE OLD CASTLE TIN PLATE COM-PANY'S Works, Llanelly, South Wales, were restarted this week, and several other Welsh tin plate establishments are reported as preparing to resume.

THE town of Cambridge, O., appears to be on the eve of a legitimate boom. Two weeks since some local capitalists commenced the formation of a company to build and operate black plate mills. Their plan of operations was similar to that recently so successful at Washington, Pa. The Cambridge Fair Grounds were purchased and laid out in building lots, 220 in number. These were dis posed of in ten days, and ultimately a profit of \$15,000 will be realized from the transaction. This will be applied by the company toward the erection of aix tin milla—i.e., mills designed for the manufacture of black plates for tinning. It is also probable that tinning pots will afterward be added. The plans of the mills will be made by A. Beard, New Philadelphia, O., who will also act as supervising engineer. Work will be commenced within 30 days, and we are authoritatively informed that the company will be incorporated this week. In addition to this enterprise others are in view for Cambridge. The Cambridge Iron & Steel Company have purchased about 5 acres of ground adjoining their present plant, and ex pect in the near future to crect tin mills thereon. The Cambridge Rooting Company, whose business has steadily increased to the consumption of about 2000 tons of black and galvan zed sheets per year, have for some time had the matter of building sheet mills under consideration, and will probably take action Another company of Eastverv soon. ern capitalista are considering the advantages of this locality with a view to the erection of tin mil's and an open hearth steel plant. Cambridge has an abundant supply of cheap and good coal and excellent railroad facilities. These advantages, together with good water sultable for boilers, are the attractions which interest the projectors of the plants described.

#### A Chicago Electric Elevated Railroad.

The use of electricity as the motive power on the Metropolitan Elevated Railroad in Chicago is now assured. The contract for the necessary equipment was placed on June 22, and is asid to be the most important electrical contract that has been closed in the United States for a year. The officers of the company have been making extensive investigations for some time into the relative cost of running their trains by steam and electricity. At first they decided in favor of steam and made partial contracts for locomotives, but afterward were so strongly impressed by the claims made for electricity that they canceled the contracts and pursued their investigations further. They are now satisfied that they can effect a net saving of about \$200,000 a year by using electricity. The economy is accured by the use of cheaper fuel in the power house than is permissible under the boilers of the steam locomotives and by the lessening of the labor bill, due to the fact that no high priced enginemen and firemen are needed on the With this in view and with the object lesson sflorded by the Intra-mural Elevated Eletric Railroad in operation at Jackson Park last summer, the directors of the Metropolitan Company came to the conclusion to employ electrically transmitted power.

Bida for all or a portion of the electrical equipment were furnished by the General Electric Company, Schenectady, N. Y.; Westinghouse Electric & Mfg. Company, Pittaburgh, Pa.; Siemens & Halske Electric Company of America, Chicago; Walker Mig. Company, Cleveland, Ohio, and Electric Construction Company, London. Owing to the tarill on electrical machinery, the English company's bid was much higher than that of any American bidder. After due consideration the contract for the entire electrical equipment was awarded to the General Electric Company. The contract price is supposed to be in the neighborhood of \$200,000 or \$225,000. The contract covers the generators, switchboard, motors, line and construction work. Four generators are to be provided—two of 1500 kilowatts each to be operated at 75 revolutions per minute, and two 800 ki'owatt in chines designed for 100 revolutions. total initlal capacity of the station will be 4600 kilowatts, or over 6000 horsepower. The generators will all be directly coupled to the engines, but the type and make of the latter have not yet been annonneed.

At the start the road will be operated on a plan calling for 55 three car trains and consequently demanding the same number of motor cars. Each motor car will be supplied with two 100 horse-power motors—one ou each truck—and 110 motors will, therefore, be necessary. Series parallel controllers, improved somewhat over the type in use on the Intramural road, will be used, and the current will be transmitted to the motors by a third rail at 500 volte pressure. In general, the system of operation in use at the World's Fair will be adopted, but many details, such as the position of the motorman, and the question of open and closed cars, remain to be settled. The apparatus will all be of the standard railway type of the General Electric Company.

The management of the road is anxious to run trains early in the fall, and it is not unlikely that some temporary arrangement for obtaining power may be made if the genera ora are not ready for operation by that time. The Metropolitan Elevated Railroad will be the The Metfirst permanent all elevated road in the United States to be operated by electrically transmitted power. The main line is about 5 miles long, running due west between Van Buren and Congress streets, with a northern branch at Paulina street. The structure and stations are nearly completed.

The Northwestern Elevated Railroad, which is to be built on the north alde of the city, will also be operated by electricity. The promoters of the scheme announced that as their intention from the inception of the project. But the Metropolitan, with its structure nearly completed, will be the first in the field to operate without the use of

ateam motors.

The Cotton States and International Exposition at Atlanta, Ga., will open September 1 and close December 31, 1895. A bill now pending in Congress making an appropriation of \$200,000 to the exposition has been favorably reported by the House and Scnate committees. All of the Southern States are said to be co-operating cordially in the acheme, with a view of making it a striking exhibition of the industrial and general progress of their section of the Union. The exposition will not, however, be confined to the South, but will embrace the whole country, and include exhibits from Mexico, Central and South America.

Kridler & Koch have opened a tin shop in the G. L. Herr storehouse on South Market street, Youngstown, Ohio.

## Alphabetical List of Brands of American Tin and Terne Plates.

Name of Brand.	CHARCOAL PLATES.	Genuine Old Style	N. & G. Taylor Co.
	Maker.	Genuine Old Style	Marshall Bros. & Co. Griffiths & Cadwallader.
Army Arrow	American Tin & Terne Plate Co.  H. W. Scatterwood	Hamilton's Best Redipped.	N. & G. Taylor Co. John Hamilton.
Arrow . Black Diamond	. H. W. Scattergood.	Hand Coated	John HamiltonAmerican Tio & Terne Plate CoMerchant & Co., Tucorp'dJohn HamiltonPhiladelphia Iron & Tin Plate WorksPhiladelphia Iron & Tin Plate Works.
		Hazlewood	John Hamilton. Philadelphia Iron & Tin Plate Works
Cherokee	Phillips Tin Plate Co. Phillips Tin Plate Co. Philadelphia Iron & Tin Plate Works.	H. & P. Redipped Rooting	Philadelphia Iron & Tin Plate Works.
Colonial	Gumman Spering & Co.	Hercules Hickory Horse Shoe	Gumney, Spering & Co.
Elgin	Abristown Tin Plate Co.	Horse Shoe	H. W. Scattergood,
Erie	- American Tin Plate Co Chicago Tin Plate Mos Co.	Indiana.	
Extra Buckeye	Meurer Bros. Co.	Iron City	Duquesne Tin Plate Works. Wallace, Banileld & Co., Ltd.
Florence.	Merchant & Co., Incorpid.  Meurer Bros. Co.	Irving	Waltace, Banfield & Co., Ltd. American Tin & Terne Plate Co.
		(1)	Chicago Tin Plate Mfg. Co.
II. & P. Hest Bright	.St. Louis Stamping Co. Philadelphia Iron & Tin Plate Works.	3	.cmeago Thr I late Mig. Co.
Imperial	. H. W. Scattergood. . H. W. Scattergood. . Walinee, Banfield & Co., Ltd.	J. H. R.	Morewood Co
lvy	Wallace, Banffeld & Co., Ltd. John Hamilton.	Juniati	New Castle Tin Plate Co.
lvy Linden Mars Merton	N. & G. Taylor Co.	Juno	Pittsburgh Tin Plate Works.
Minerva	Merchant 6.20 Lourne	Keystone	Pittsburgh Tin Plate Works. American Tin & Terne Plate Co.
Now Coutle Palm	Philadelphia Iron & Tin Plate Works.	Keystone Hand Dipped	American Tin & Terne Plate Co.
New Castle Best Paim New Castle Charcoal. New Castle S. Charcoal. New Castle S. Charcoal.	New Castle Tin Plate Co.	Knoxall Laufman's Apollo	N. & G. Taylor Co.
New Castle S. Charcoal	3	Lau(man's Rooting Tin	P. H. Laofman & Co., Ltd. H. W. Scattergood.
Neptone	Gummey, Spering & Co. Philups Tin Plate Co.	Leomister	Gummey, Spering & Co.
Onk. Palma. Peeriess. Penn Treaty. Phoenix. Pisa.	Merchant & Co., Incorp'd. H. W. Scattergood.	Liberty	John Hamilton.
Penn Treaty Phœnix	Marshall Bros. & Co.	Maple Marshall	N. & G. Taylor Co. Marshall Bros. Co.
Pisa Plorama	Merchant & Co., Incorp'd.	M. C. B Merchant's Old Method	Marshall Bros. Co. Merchant & Co., Incorp'd.
Plorama Primrose. Onaker City	Griffiths & Cadwallader.	Merchant's Roofing Meurer's Roofing	. Merenant & Co., Incorp a.
Record Al.	Record Mfg. Co.	Mingo Old Process Mohawk.	John Hamilton.
Quaker City Record AI Record A R. II. J Royal	Morewood Co.	National Neville	Phillips Tin Plate Co.
Seminole,	No. & G. Taylor Co. Philadelphia Iron & Tia Plate Works. Somerton Tin Plate Works. Somerton Tin Plate Works.	New Castle Old Method	New Castle Tip Plate Co.
Somerbrook	Somerton Tin Plate Works.	New Castle Paim New Process	New Castle Tin Plate Co. George W. Jaques.
St Louis	To dimines , opering & Co.	New Process Norristown Extra. Norristown Redipped	Norristown Tin Plate Co. Norristown Tin Plate Co.
Sun U.S. Bright	St. Louis Stamping Co. Gummey, Speriog & Co. U. S. Iron & Tin Plate Mfg. Co. U. S. Iron & Tin Plate Mfg. Co. Gummey Species & Co.	Old Colony	.A. A. Thomson & Co.
Versailles	U. S. Iron & Tin Plate Mig. Co. U. S. Iron & Tin Plate Mig. Co.	Oneida Roofing	Philadelphia Iron & Tin Plate Works.
Vietor Youghiogheny	Gummey, Spering & Co. U. S. Iron & Tin Plate Mfg. Co.	Palm Pennsyl Old Method	Merchant & Co., Incorp'd.
	COKE PLATES.	Pena Treaty	Marshall Bros. & Co.
Almond Brooklyn	V & C Turley Co	Phillips' Roofing Phœpix Pioneer	Gummey, Spering & Co.
B 🔷 D	II. W. Scuttergroud	Piqua	Cipeippati Corrugating Co.
C. T. P.	Cleveland Tin Plate Co. American Tin Plate Co. Canonsburg Iron & Steel Co. Phillie Tin Plate Co.	Piqua Triple Coated	.Cineinnati Corrugating Co. Morewood Co.
Flag	. American Tin Plate Co. . Canonsburg Iron & Steel Co.	Pullman	Meurer Bros Co. American Tin & Terne Plate Co.
Irondale	.Canoosborg Iron & Steel CoPhillips Tin Plate CoWallace, Banfield & Co., Ltd. Merchant & Co., Incorp'd. American Tin Plate Co.	Quaker Citv	H. W. Scattergood.
Leslie. Leeds	Merchant & Co., Incorp'd.	Republic Scott's Extra Coated	Jas. B. Seott & Co.
Locust.	American Tin Plate Co. N. & G. Taylor Co. Baltimore Steel, Iron & Tio Plate Co. N. & G. Taylor Co. New Castle Tin Plate Co. Norristown Tin Plate Co.	Sharon	. Philadelphia Tin Plate Co.
Mint New Castle Pulm	N. & G. Taylor Co.	S L S Old Process Snowdrop Special Extra Conted	Saunders, Fielding & Bond.
Norristown	Norristown Tin Plate Co.	Spruce	. Merchant & Co., Incorpid, N. & G., Iaylor Co.
		Spruee	Meurer Bros. Co. Meurer Bros. Co.
	.Chicago Tin Plate Mfg. Co.	Taylor Roofing Tin	Meurer Bros. Co. N. & G. Taylor Co.
Pansy.	. Chicago Tin Plate Mfg. Co.	Taylor Roofing Tin	Meurer Bros. Co. N. & G. Taylor Co.
Pausy.	. Chicago Tin Plate Mfg. Co.	Superior Taylor Roofing Tin Thomson's Puritan Tip Top Trlumph Trotter's American New	Menrer Bros. Co. N. & G. Taylor Co. A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co.
Pausy.	. Chicago Tin Plate Mfg. Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing	Menrer Bros. Co. N. & G. Taylor Co. A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co.
Pansy: Petunia Record Coke Steel Coke Walnut	. Chicago Tin Plate Mfg. Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grapt	Menrer Bros. Co.  N. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg.
Pausy: Petunia Record Coke Steel Coke Walnut.  TEI	. Chicago Tin Plate Míg. Co John Hamilton Griffiths & Cadwallader Record Míg. Co St. Louis Stamping Co Phillips Tin Plate Co. IRNE PLATES.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method. Trotter's Roofing U. S. Eagle. U. S. Grant U. S. Monongahela. U. S. Redinned.	Menrer Bros. Co.  N. & G. Taylor Co. A. A. Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co.
Pausy: Petunia Record Coke Steel Coke Walnut.  TEI	. Chicago Tin Plate Míg. Co John Hamilton Griffiths & Cadwallader Record Míg. Co St. Louis Stamping Co Phillips Tin Plate Co. IRNE PLATES.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Redipped V. S. Redipped Venus Waldo.	Menrer Bros. Co.  N. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co. Gummey, Spering & Co. Phillips Fin Plate Co.
Pausy: Petunia Record Coke Steel Coke Walnut.  TEI	. Chicago Tin Plate Míg. Co John Hamilton Griffiths & Cadwallader Record Míg. Co St. Louis Stamping Co Phillips Tin Plate Co. IRNE PLATES.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Grant U. S. Redipped Venus Waldo West moreland Willow	Menrer Bros. Co.  N. & G. Taylor Co.  A. A. Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  United States Iron & Tin Plata Mfg. Co.  Gummey, Spering & Co. Phillips Tin Plate Co. Pittsburgh Tin Plate Works.  N. & G. Taylor Co.
Pansy. Petunia. Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderly Allegheny Alla. Amber Anehor	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader, .Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate CoRNE PLATESSt. Louis Stamping CoMerchant & Co., Incorp'dGummey, Speriog & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoPittsburgh Cin Plate Works.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Monongahela U. S. Redipped Venus Waldo Westmoreland Willow. Zero	Menrer Bros. Co.  N. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  Philindelphia Tin Plate Co.  United States Iron & Tin Plata Mfg. Co.  Gummey, Spering & Co. Phillips Iin Plate Co.  Pittsburgh Tin Plate Works.  N. & G. Taylor Co. Phillips Tin Plate Co. Phillips Tin Plate Co.
Pansy. Petunia. Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderly Allegheny Alla. Amber Anehor	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader, .Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate CoRNE PLATESSt. Louis Stamping CoMerchant & Co., Incorp'dGummey, Speriog & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoPittsburgh Cin Plate Works.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Triumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Grant U. S. Redipped Venns Waldo Westmoreland Willow. Zero Dealers'	Menrer Bros. Co.  N. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co.  United States Iron & Tin Plata Mfg. Co.  Gummey, Spering & Co. Phillips Iin Plate Co. Pittsburgh Tin Plate Works.  N. & G. Taylor Co. Phillips Tin Plate Co. Special Brands.
Pansy. Petunia Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderty Allegheny. Alla Amber Anehor Apollo Best Rooling. Areh.	. Chicago Tin Plate Mfg. Co.  . John Hamilton Griffiths & Cadwallader Record Mfg. Co St. Louis Stamping Co Phillips Tin Plate Co RNE PLATES.  St. Louis Stamping Co Merchant & Co., Incorp'd Gummey, Spering & Co Laufman Tin Plate Co St. Louis Stamping Co St. Louis Stamping Co Gummey, Spering & Co Co Pittsburgh Cin Plate Works Gummey, Spering & Co Apollo Iton & Steel Co Merchant & Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Triumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Grant U. S. Redipped Venus Waldo Westmoreland Willow. Zero  Dealers' BHIGHT (	Menrer Bros. Co.  M. & G. Taylor Co.  A. A Thomson & Co.  Lanfman Tin Plate Co.  Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  United States Iron & Tin Plata Mfg.  Co.  Gummey, Spering & Co.  Phillips Fin Plate Co.  Pittsburgh Tin Plate Works.  N. & G. Taylor Co.  Phillips Tin Plate Co.  Special Brands.  CHARCOAL PLATES.
Pausy: Petunia Record Coke Steel Coke Walnut  TEI Aeme Alaska Alderly Allegheny Alla Amber Apollo Best Rooling Arch Arrow Black Diamond. Bonny.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Uadwallader, .Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate CoRNE PLATESSt. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoPittsburgh Cin Plate CoSt. Louis Stamping CoPittsburgh Cin Plate WorksGummey, Spering & CoApollo Iton & Steel CoMerchant & Co., Incorp'dH. W. Scattergood, .H. W. Scattergood, .Lan Illand Loop.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Redipped Venus Waldo Westmoreland Willow. Zero  Dealers' BHIGHT ( Name of brand.	Menrer Bros. Co.  M. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  United States Iron & Tin Plata Mfg. Co.  United States Iron & Tin Plata Mfg. Co.  Phillips Tin Plate Co.  Phillips Tin Plate Co.  Phillips Tin Plate Co.  Phillips Tin Plate Co.  Special Brands.  CHARCOAL PLATES.  Dealer's name and address.
Pansy. Petunia Record Coke Steel Coke. Steel Coke. Walnut.  TEI Aeme Alaska Alderly. Allegheny Alla. Amber Apollo Best Rooling. Arrow. Black Dumond. Bonus. Boson. Buckeye.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & CadwalladerRecord Mfg. CoSt. Louis Stamping CoPhillips Tin Plate CoRNE PLATESSt. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoGust fon Stamping CoAsut man Tin Plate CoSt. Louis Stamping CoApollo Iron & Steel CoApollo Iron & Steel CoMerchant & Co., Incorp'dH. W. ScattergoodH. W. ScattergoodJohn HamiltonPhillips Tin Plate Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Grant U. S. Monongahela U. S. Redipped Venus Waldo Westmoreland Willow. Zero  Dealers' BRIGHT (  Name of brand. C. S. R. Co. Home C. S. R. Co. Home C. S. R. Co. Home	Menrer Bros. Co.  M. & G. Taylor Co.  A. A Thomson & Co.  Lanfman Tin Plate Co.  Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  United States Iron & Tin Plata Mfg.  Co.  Gummey, Spering & Co.  Phillips Fin Plate Co.  Pittsburgh Tin Plate Works.  N. & G. Taylor Co.  Phillips Tin Plate Co.  Special Brands.  CHARCOAL PLATES.
Pansy: Petunia Record Coke Steel Coke. Wainut.  TEI Aeme Alaska Alderly. Allegheny. Alla. Amber Anchor Ayollo Best Rooling. Arrow. Black Duamond. Bonus. Boston. Buckeye. Central Climax	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & t'adwalladerRecord Mfg. CoSt. Louis Stamping CoPhillips Tin Plate CoRNE PLATES.  St. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoSt. Louis Stamping CoAutiman Tin Plate CoSt. Louis Stamping CoMittsburgh Cin Plate WorksGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dH. W. ScattergoodJohn Hamilton, .Phillips Tin Plate CoCleveland Tin Plate CoCleveland Tin Plate CoCleveland Tin Plate CoGunmey, Spering & Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Keagle Venus Waldo Westmoreland Willow Zero  Dealers' BRIGHT  Name of brand. C. S. R. Co. Home C. S. R. Co. Tower Sant Tip Tower C. S. R. Co., Tower Services Trivales  C. S. R. Co., Tower C.	Menrer Bros. Co.  M. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  Philadelphia Tin Plate Co.  United States Iron & Tin Plata Mfg. Co.  United States Iron & Tin Plata Mfg. Co.  Phillips Tin Plate Co.  Phillips Tin Plate Co.  Phillips Tin Plate Co.  Phillips Tin Plate Co.  Special Brands.  CHARCOAL PLATES.  Dealer's name and address.
Pansy. Petunia Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderly. Allegheny. Alla. Amber Anchor Ayollo Best Rooling. Arrow. Black Dumond. Bonns. Hoston Buckeye. Central Climax Columbia.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader. Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate Co. RNE PLATES.  St. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dII. W. ScattergoodII. W. ScattergoodJohn HamiltonPhillips Tin Plate CoCleveland Tin Plate CoA. A. Thomson & CoGummey, Spering & CoN. & G. Taylor Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Redipped Westmoreland Willow Zero  Dealers' BBHGHT  Name of brand. C. S. R. Co. Home C. S. R. Co. Tower C. S. R. Co., Yale Jonn.	Menrer Bros. Co.  M. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co. Gummey, Spering & Co. Phillips Iin Plate Co. Pittsburgh Tin Plate Works.  M. & G. Taylor Co. Phillips Tin Plate Co. Special Brands. CHARCOAL PLATES. Dealer's name and address.  Canton Steel Roofing Co., Canton, Ohlo.
Pansy. Petunia Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderly. Allegheny. Alla. Amber Anchor Ayollo Best Rooling. Arrow. Black Dumond. Bonns. Hoston Buckeye. Central Climax Columbia.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader. Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate Co. RNE PLATES.  St. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dII. W. ScattergoodII. W. ScattergoodJohn HamiltonPhillips Tin Plate CoCleveland Tin Plate CoA. A. Thomson & CoGummey, Spering & CoN. & G. Taylor Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Redipped Westmoreland Willow Zero  Dealers' BBHGHT  Name of brand. C. S. R. Co. Home C. S. R. Co., Tower C. S. R. Co., Tyale Jona.	Menrer Bros. Co.  M. & G. Taylor Co.  A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co. Gummey, Spering & Co. Phillips Fin Plate Co. Pittsburgh Tin Plate Works. N. & G. Taylor Co. Phillips Tin Plate Co. Special Brands. CHARCOAL PLATES. Dealer's name and address. Canton Steel Roofing Co., Canton, Ohlo. Mortimer II. Corl, New York, ENE PLATES.
Pansy. Petunia Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderly. Allegheny. Alla. Amber Anchor Ayollo Best Rooling. Arrow. Black Dumond. Bonns. Hoston Buckeye. Central Climax Columbia.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader. Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate Co. RNE PLATES.  St. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dII. W. ScattergoodII. W. ScattergoodJohn HamiltonPhillips Tin Plate CoCleveland Tin Plate CoA. A. Thomson & CoGummey, Spering & CoN. & G. Taylor Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method. Trotter's Roofing U. S. Eagle. U. S. Grant U. S. Redipped. U. S. Redipped. Waldo. Westmoreland Willow Zero  Dealers' BHIGHT  Name of brand. C. S. R. Co. Home C. S. R. Co., Yale. Jona.  Atlantic Dane. De Milt's First New York. De Milt's First New York.	Menrer Bros. Co. M. & G. Taylor Co. A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co. Gummey, Spering & Co. Phillips Tin Plate Co. Phillips Tin Plate Co. Pittsburgh Tin Plate Works. N. & G. Taylor Co. Phillips Tin Plate Co. Special Brands. CHARCOAL PLATES. Dealer's name and address. Canton Steel Roofing Co., Canton, Ohlo. Mortimer H. Corl, New York. NE PLATES. Mortimer H. Corl, New York.
Pausy. Petunia Record Coke Steel Coke. Walnot.  TEI Aeme Alaska Alderly. Allegheny. Alla Amber Apollo Best Rooling Areh Arrow. Black Diamond. Bonus. Bosion. Buckeye. Ceotral Climax Columbia.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader. Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate Co. RNE PLATES.  St. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dII. W. ScattergoodII. W. ScattergoodJohn HamiltonPhillips Tin Plate CoCleveland Tin Plate CoA. A. Thomson & CoGummey, Spering & CoN. & G. Taylor Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Redipped Venus Waldo Westmoreland Willow Zero  Dealers' BHIGHT  Name of brand. C. S. R. Co. Home C. S. R. Co., Yale John John  TEM Atlantic Dane De Milt's First New York, De Milt's First New York, De Milt's Mohawk	Menrer Bros. Co. M. & G. Taylor Co. A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co. Gummey, Spering & Co. Phillips Tin Plate Co. Pittsburgh Tin Plate Works. N. & G. Taylor Co. Phillips Tin Plate Co. Special Brands. CHARCOAL PLATES. Dealer's name and address. Canton Steel Roofing Co., Canton, Ohlo. Mortimer H. Corl, New York. INE PLATES. Mortimer H. Cort, New York. II. R. de Milf & Co., New York.
Pansy. Petunia Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderly. Allegheny. Alla. Amber Anchor Ayollo Best Rooling. Arrow. Black Dumond. Bonns. Hoston Buckeye. Central Climax Columbia.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader. Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate Co. RNE PLATES.  St. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dGummey, Spering & CoApollo Iron & Steel CoMerchant & Co., Incorp'dII. W. ScattergoodII. W. ScattergoodJohn HamiltonPhillips Tin Plate CoCleveland Tin Plate CoA. A. Thomson & CoGummey, Spering & CoN. & G. Taylor Co.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Redipped Venus Waldo Westmoreland Willow Zero  Dealers' BBIGHT  Name of brand. C. S. R. Co. Home C. S. R. Co., Tower C. S. R. Co., Tower C. S. R. Co., Tower Units First New Jersey De Milt's First New Jersey Milt's First New Jersey Milt's Mohawk Ununlap's Double Dipped Ununlap's Double Dipped United Street New Jersey Dunlap's Double Dipped Ununlap's Double Dipped United Street New Jersey Dunlap's Double Dipped United Street New Jersey Dunlap's Double Dipped Dunlap's Double Dipped United Street New Jersey Dunlap's Double Dipped Dunlap's Double Dipped	Menrer Bros. Co. M. & G. Taylor Co. A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co. Gummey, Spering & Co. Phillips Fin Plate Co. Pittsburgh Tin Plate Works. N. & G. Taylor Co. Phillips Tin Plate Co. Special Brands. CHARCOAL PLATES. Dealer's name and address. Canton Steel Roofing Co., Canton, Ohlo. Mortimer H. Cort, New York. M. R. de Milf & Co., New York. John Dunlap Co., Pittsburgh Pa.
Pansy. Petunia Record Coke Steel Coke. Walnut.  TEI Aeme Alaska Alderly. Allegheny. Alla. Amber Anchor Ayollo Best Rooling. Areh. Arrow. Black Diamond. Bonns. Boson Buckeye. Ceotral Climax Columbias Columbias Columbia.	.Chicago Tin Plate Mfg. Co.  .John HamiltonGriffiths & Cadwallader. Record Mfg. CoSt. Louis Stamping CoPhillips Tin Plate Co. RNE PLATES.  St. Louis Stamping CoMerchant & Co., Incorp'dGummey, Spering & CoLaufman Tin Plate CoSt. Louis Stamping CoSt. Louis Stamping CoAufman Tin Plate CoSt. Louis Stamping CoApollo Iron & Steel CoMerchant & Co., Incorp'dII. W. ScattergoodII. W. ScattergoodII. W. ScattergoodII. W. ScattergoodII. W. ScattergoodJohn HamiltonPhillips Tin Plate CoCleveland Tin Plate CoMa Chaplor CoPhillips Tin Plate CoMerchant & Co., Incorp'dCleveland Tin Plate CoMerchant Tin Plate CoNorristown Pin Plate CoNorristown Pin Plate CoMolladelphia Iron & Tin Plate CoMerchant & Tin Plate CoMerchant & Tin Plate CoMerchant & Co., Incorp'd.	Superior Taylor Roofing Tin Thomson's Puritan. Tip Top Trlumph Trotter's American New Method Trotter's Roofing U. S. Eagle U. S. Grant U. S. Grant U. S. Redipped Venus Waldo Westmoreland Willow Zero  Dealers' BRIGHT  Name of brand. C. S. R. Co. Home C. S. R. Co., Tower C. S. R. Co., Tower C. S. R. Co., Tower U. S. Mill's First New York., De Mill's First New York., De Mill's First New Jersey De Mill's Mohawk. Unulap's Double Dipped Dunlap's Double Dipped Furmston Kenwood.	Menrer Bros. Co. M. & G. Taylor Co. A. A Thomson & Co. Lanfman Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. Philadelphia Tin Plate Co. United States Iron & Tin Plata Mfg. Co. Gummey, Spering & Co. Phillips Fin Plate Co. Phillips Fin Plate Co. Phillips Tin Plate Co. Phillips Tin Plate Co. Special Brands. CHARCOAL PLATES. Dealer's name and address. Canton Steel Roofing Co., Cauton, Ohlo. Mortimer H. Cort, New York. KNE PLATES. Mortimer II. Cort, New York. U. R. de Milt & Co., New York. John Dunlap Co., Pittsburgh Pa. C. Sidney Shepard & Co., Chicago.
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JULY 7, 1891.

List of American Manufacturers of Tin and Terne Plates.

Printed phia, Pa.   Pa	Elwood, Leeds.  Elwood, Leeds.  Elgin, Erie  Buckeye, Extra Buckeye  Pirmrose  Colonial, Stag. Victor, Sun  Plorama, Ivy  Peno Treaty.  Florida, Excelsior  New Custle Best Paim, New Castle.	Coke.	Terne plates.  Keystone, Puritth, Hancock, Irving, Keystone Hand Dipped, Elwood Terne, Indiana.  Confinuous Rooding.  Apollo Best Roching.  J., Extra Eric  Piqua. Buckeye, C. T. P. Iron City. Mohawk, First New York, Juanta.  Glenwood.  Pherula, Climax, Venus, Flag. Eagle, Liberty, Anchor, Process, Bonns, Lalla, Killbuck, Hazlewood. June, New Process, Roofing.  Hamilton's Best Re-Dipped, Oscola Old Style, Mingo Old Process, Bonns, Lalla, Killbuck, Hazlewood. June, New Process, Roofing. Apollo, Process, Roofing. Anollo, New Process, Roofing. June, New Trocks, Marchanity, Girard, M. C. B., Marchall.  Marchant's, Old Method, Merchanit's, Roofing, Happl	Makang bright, plates for their own use only.  Operation temporarily suspited.  Make only for own use.  Yreparing to make black plates.  Operation suspended.
Full and collaboration   Full and collaborat	Charceal.  Elwood, Leeds.  Elwood, Leeds.  Elgin, Eric  Buckeye, Extra buckeye  Primasse.  Phenix, Climax, Mars, Neptune. Colonial, Stag, Victor, Sun Plorama, Ivy.  Peno Treaty.  Palma, Florence, Pisa, Mimerya.  Florida, Excelsior  New Custle Best Paim, New Castle.	Coke.	K, Keystone Hand . Liberty, Anchor, thod, Leonimster, told Style, Mingo k, Hazlewood. pp. Allegheny. hall.	Makong bright plates for their own use only.  Operation temporarily susp'dred, Make only for own use, Make only for own use, Preparing to make black plates.  Operation suspended,
Elwood, Ind.   10   10   10   10   10   10   10   1	Elwood, Leeds.  Elwood, Leeds.  Elgin, Erie  Buckeye, Extra Buckeye  Primrose. Phurnix, Climax, Mars, Neptune. Colomial, Stag, Victor, Sun Plorama, Ivy.  Peno Treaty.  Palma, Florence, Pisa, Minerya.  Florida, Excelsior		K, Keystone Hand  "Liberty, Anchor, thod, Leominster, told Style, Mingo k, Hazlewood, pp. Allegheny. hall kall.	Makeng beight plates for their own use only.  Operation temporarily suspided,  Make only for own use.  Preparing to make black plates.  Operation suspended.
Elwood, Ind.   10   10   10   10   10   10   10   1	Elwood, Leeds.  Elgin, Erie  Buckeye, Extra Buckeye  Primrose. Phenix, Climax, Mars, Neptune. Colonial, Stag, Victor, Sun Plorama, Ivy. Peno Treaty. Palma, Florence, Pisa, Minerya.  Florida, Excelsior  New Custle Best Palm, New Custle.		. Eiberty, Anchor, thou, Leoninister, vola Style, Mingo K, Hazlewood.	Maken bright plates for their own use only. Operation temporarily suspided, Make only for own use. Preparing to make black plates. Operation suspended.
Brookyn, N. Y   1   No.	Buckeye, Extra Buckeye.  Buckeye, Extra Buckeye.  Primrose. Phurnix, Climax, Mars, Neptune. Colonial, Stag. Victor, Sun Plorama, Ivy Peno Treaty.  Forida, Excelsior.  New Custle Best Paim, New Custle.		. Liberty, Anchor, chod, Leoninster, k. Hazlewood. pp. Alleghenty. hall. Northy, Hapl	Make only 1 to rown use.  Operation temporarily suspided, Make only for own use. Preparing to make black plates. Operation suspended.
Battinone, Md	Elgin, Erie  Buckeye, Extra Buckeye  Primrose Phurnix, Climax, Mars, Neptunc, Colonial, Stag, Victor, Sun Plorama, Ivy.  Peno Treaty.  Peno Treaty  Peno Treaty  Florina, Excelsior  New Custle Best Pain, New Castle		. Liberty, Anchor, chod, Leoninster, k. Hazlewood. pp. Alleghenry. hall. Northug. Hagd.	Operation temporarily suspided, Operation temporarily suspided, Make only for own use, Preparing to make black plates, Operation suspended,
Chicago, III.         2         7 ves.           Chicago, III.         4         4         No.         E           Chicago, III.         3         3         No.         E         No.	Elgin, Eric  Buckeye, Extra Buckeye.  Primrose.  Phrenix, Climax, Mars, Neptune. Colonial, Stag. Victor, Sun Plorama, Ivy  Peno Treaty.  Peno Treaty.  Felorida, Excelsior  New Custle Best Paim, New Castle, R.	· · · · · · · · · · · · · · · · · · ·	. Liberty, Anchor, thod, Leonimster, cold Style, Mingo k, Hazlewood. pp, Allegheny. hall.	Operation temporarily suspided.  Make only for own use.  Make only for own use.  Preparing to make black plates.  Operation suspended.
Chicago, III. 10  Chicago, III. 11  Ships, O. E. E. Shooler Chicago, III. 12  Chicago, III. 13  Ships, O. E. Shooler Chicago, III. 12  Now York. 13  Fittsburgh, Pa. 14  Fittsburgh, Pa. 15  Fhiladelphia, Pa. 15  Butter, Und. 15  Butter, Ind. 15  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 16  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 16  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 16  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 16  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 16  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 17  Norristown, Pa. 15  Chicago, III. 17  No. 18  Fhiladelphia, Pa. 15  Chicago, III. 18  No. 18  Fhiladelphia, Pa. 15  Compeant, O. 18  Fhiladelphia, Pa. 15  Compeant, O. 18  Fhiladelphia, Pa. 18  No. 18  N	Elgin, Eric  Buckeye, Extra Buckeye.  Primrose. Colonial, Stag. Victor, Sun Plorama, Ivy Peno Treaty.  Peno Treaty.  Florida, Excelsior  New Custle Best Paim, New Castle R	· · · · · · · · · · · · · · · · · · ·	. Liberty, Anchor, thod, Leoninster, cold Style, Mugo k, Hazlewood. pp. Allegheny. hall.	Make only for own use.  Make only for own use.  Preparing to make black plates.  Operation suspended.
Chicugo, III.         3         3         No E           Piqua, O         5         5         No B           Piqua, O         2         No B         No B           Pittsburgh, Ia.         4         4         No B           Phitaburgh, Pa.         3         3         No P           Pittsburgh, Pa.         3         3         No P           Pollo, Pa.         1         1         No P           Now York         2         2         No P           Now York         3         3         No P           Ruddelphia, Pa.         5         3         No F           Butler, Inction, Pa.         5         3         No F           Butler, Inction, Pa.         5         3         No F           Butler, Inction, Pa.         5         8         No F           Gas City, Ind.         2         5         No F           Folladelphia, Pa.         7         7         No F           Philadelphia, Pa.         7         7         No F           Philadelphia, Pa.         5         5         No F           Philadelphia, Pa.         5         5         No	Buckeye, Extra Buckeye.  Buckeye, Extra Buckeye.  Primaose.  Primaose.  Colonial, Stag. Victor, Sun Plorama, Ivy  Peno Treaty.  Peno Treaty.  Peno Treaty.  Peno Treaty.  Peno Treaty.  Relevant Buckelstor  Bow Custle Best Paim, New Castle R		. Liberty, Anchor, thod, Leominster, 1918 Style, Muges k, Hazlewood. pp. Allegheny. hall.	Make only for own use.  Preparition suspended.
Piqua, 0         5         5         No         B           Piqua, 0         2         No         B         No         B           Pittsburgh, 1a.         2         No         P         No         P           Pittsburgh, 1a.         3         3         No         P	Buckeye, Extra Buckeye.  Primose. Phernix, Ginnax, Mars, Neptune, Phernix, Ginnat, Victor, Sun Plorama, Ivy. Peno Treaty. Peno Treaty. Florida, Excelsior New Custle Best Paim, New Castle, R		. Liberty, Anchor, chod, Leominster, rold Style, Mugo k, Hazlewood, pp, Allegheny. hall.	Operation suspended.  Nake only for own use.
Cheveland, 0.   2   No.   B     Fittsburgh, 1n   2   2   No.   B     Fittsburgh, 1n   4   4   No.   P     Fittsburgh, 1n   4   4   No.   P     Fittsburgh, Pa   3   3   No.   P     Fittsburgh, Pa   3   3   No.   P     Fittsburgh, Pa   2   2   No.   P     Fittsburgh, Pa   3   3   No.   P     Fittsburgh, Pa   5   7     Fittsburgh, Pa   5   7   No.   F     Fittsburgh, Pa   5   7   No.   F     Fittsburgh, N. Y.   6   No.   F     Fittsburgh, Pa   7   7   No.     Fittsburgh, Pa   7   7   No.   F     Fittsburgh, Pa   7   7   No.     Fittsburgh, Pa   7   7   No.   F     Fittsburgh, Pa   7   7   No.   F     Fittsburgh, No.   7   7   7     Fittsburgh, No.   7   7   7     Fittsburgh, Pa   7   7   7     Fittsburgh, Pa   7   7   7     Fittsburgh, Pa   7     Fittsb	Buckeye, Extra Backeye.  Primrose. Phurnix, Climax, Mars, Neptune. Polorama, Ivy. Plorama, Ivy. Peno Treaty. Peno Treaty. Perorida, Excelsior New Custle Best Paim, New Castle, R.		. Liberty, Anchor, chod, Leominster, 1 old Style, Mugo k, Hazlewood. pp. Allegneny.	Operation suspended.
Pittsburgh, 14, 14, 18, 18, 19, 19, 19, 19, 19, 19, 19, 19, 19, 19	Primrose. Physical Stag. Victor, Sun Plorama, Ivy Peno Treaty. Flaima, Florence, Pisa, Minerva.  Elorida, Excelsior New Custle Best Paim, New Castle, R.		thou, Leoninster, thou, Leoninster, told Style, Mugo, k, Hazlewood, pp. Allexheny.	dake only tor own use.
Philadelphia, Pa.   4   4   No.   Philadelphia, Pa.   3   3   No.   Philadelphia, Pa.   5   5   No.   Compeant, O.   Philadelphia, Pa.   5   1   No.   Respect City, N. J.   3   No.   Respect City, N.   Respect City, N. J.   3   No.   Respect City, N. J.   3   No.   Respect City, N.   3   No.   Resp	Pirmivse. Pirmivse. Colonial, Stag. Victor, Sun Plorama, Ivy Peno Treaty. Peno Treaty. Pelorida, Excelsior New Custle Best Paim, New Castle, R New Custle Best Paim, New Castle, R New Castle Best Paim, New Castle, R	Į.	. Liberty, Anchor, chod, Leominster, told Style, Mingo k, Hazlewood. pp. Allegteny. hall.	Nake only 10r own use.
New York   2   No.   Partsburgh, Pa.   3   3   No.   Partsburgh, Pa.   2   No.   Partsburgh, Pa.   3   Yes.   Partsburgh, Pa.   5   5   Yes.   Partsdephia, Pa.   5   5   Yes.   Partsdephia, Pa.   5   5   Yes.   Partsdephia, Pa.   5   5   No.   Fast Color, Partstown, Pa.   7   7   No.   Fast Color, Partsdephia, Pa.   7   7   No.   Fast Comeant, One of thirdelphia, Pa.   5   5   No.   Fast Comeant, One of thirdelphia, Pa.   5   5   No.   Fast Comeant, One of thirdelphia, Pa.   5   5   No.   Fast Comeant, One of thirdelphia, Pa.   5   5   No.   Fast Comeant, One of thirdelphia, Pa.   5   5   No.   Fast Comeant, One of thirdelphia, Pa.   5   5   No.   Fast Comeant, One of thirdelphia, Pa.   5   5   No.   Fast Comeant, One of thirdelphia, Pa.   Fast Comeant, One of thirdelphia,	Plorama, Ivy.  Peno Treaty.  Taima, Florence, Pisa, Minerya.  Florida, Excelsior  New Custle Best Paim, New Castle, R.		g. Engle, Jaberty, Anctor, Old Method, Leoninster, Oscoda Old Style, Mingo Killbuck, Hazlewood, Tip Top, Allegheny, K. Marshall, Ferchnaft, Roeting, Hapi	Nake only 10r own use.
New York	Plorama, Ivy  Peno Treaty  Palma, Florence, Pisa, Minerya  Elorida, Excelsior  New Custle Best Palm, New Castle, R		Osceola Old Style, Mingo Killonek, Hazlewood, Tip Top, Allegheny, K. Marshall, Ferdunge, Hapi	Kake only for own use.
New York   2   No.   New York   New York   New York   No.	Peno Treaty.  Palma, Florence, Pisa, Minerva.  Florida, Excelsior  New Custle Best Paim, New Castle, R.		Millouck, Hazlewood. Tip Top, Allegheny. 5. Marshall. Ferchnofs, Rocting, Hand	Kake only for own use.
Butter, hunction, ph. 5 8 Ves. Philadelphia, ph. 2 5 No. 17  Fhiladelphia, M. Y. 6 6 No. 17  Frooklyn, N. Y. 6 6 No. 18  Rooklyn, N. Y. 6 6 No. 18  Cas City, Ind. 19 10 Ves. No. 18  Norristown, Pa. 17 7 No. 18  Philadelphia, Pa. 18 3 No. 19  Philadelphia, Pa. 3 No. 19  Conneaut, O. 2 1 No. 18  Philadelphia, Pa. 5 1 No. 18  Conneaut, O. 2 1 No. 18  Fridadelphia, Pa. 3 1 No. 19  Fridadelphia, Pa. 3 1 No. 18	Peno Treaty.  Talma, Florence, Pisa, Minerva.  Florida, Excelsior  New Custle Best Paim, New Castle, R.		fard	Make only for own use.
Baltimore, Md	Palma, Florence, Pisa, Minerya, L. Florida, Excelsior New Custle Best Paim, New Castle R		land	Make only for own use.
Rrocklyn, N. Y.   6   6   No.   F     Gas City, Ind.   10   10   Yes.   No.     Chicago, No.   12   12   Yes.   No.     Chicago,   14   15   No.     Chicago,   16   16   Yes.   H     Chicago,   17   No.     Chicago,   18   No.     Comeant, O.   18   No.     Comeant, O.   18   No.     Comeant, O.   18   No.     Chicago, City, N. J.   3   No.     Comeant, O.   18   No.	Florida, Excelsior  New Custle Rest Pain, New Castle		Melhod, Merchants	
Norristown, Pa 7 7 800 E Philadelphia, Pa 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	New Castle Best Paim, New Castle		Confed, Special Faltra Control, Alaska, Arch, Hick- ory, Empire, Tescent, Palm.	
Norristown, Pa 7 7 No. E Politonzo	Dolm Non Postly Office		F. W. B. J. H. R., P. T. D., H. C. B. New Castle Old Method, New Castle Palm	
Chronko         16         16           Philadelphia, Pa         3         3           Philadelphia, Pa         5         5           Conneaut, O.         2         4           Conneaut, O.         3         3           Jersey Chy, N. J.         3         3           Philadelphia, Pa.         3         3	Carlle S. Charconi. New Earnest.			
Philadelphia, Pa 3 3  Philadelphia, Pa 5 5  New Kensington, Pa. 5 4  Comeaut, O 2 1  Jersey City, N. J 3 1  Philadelphia, Pa 3 3	H. & P. Best Bright, Seminole, Mo-		r-Dipped, Earnest.	Make only for own use.
Philadelphia, Pa 5 5 No C   Comeand of the No C   No	hawk, Cherokee		Delaware, Huron, Oneida,	
New Kensington, Pa. 5 4 No Conneant, O. 2 1 No. B 1 Holesey City, N. J. 3 1 No. B Philadelphia, Pa. 3 3 No. B	Century, Oak	:	Trotter's American New Method, Trotter's Rootlag, Eliver, Shaton, Trumph, End.	
Omesatt, O		wamud, madys,	ardo, I'mitips' Roomag, Reston, National, Columbus, Republic, Zero.	
0 0 NO 13	Record A. Rec		Neusington, westmortisher, Almert, ande	., refaires to make oach patter.
	Back Damond, Arrow, Quaker City, Black Diamond Coke Horse Shoe, Imperial, Pecriess		Black Diamond, Quaker City, Horse Shoe, Arrow, Lavrel	
No			tra Conted	Operations suspended.
Brooklyn, N. Y St. Louis, Mo	Somerton, Somerbrook Grapite, St. Louis			
Philadelphia, Pa, 29 19 No Ti	Taylor's Hand Dipped, Brilliant, Royal, Merion, Lioden	Almond, Mint, Locust, Ge	ARTH FIRE ACTION ATTA, N. L. N., OLD PROGRES, N. G., Gennine Old Style, Old Method, Toylor Boothur Tin, Colombia, Muyle, Willow, Knovall, Globs, Notice	
Thomson, (A. A.) & Co. New York 3 2 No. United States from & The Plate Mfg. Co. Demmier. Pa. 12 12 No. 17 S. Reich	100	Fb	Thomson's Puritan, Central, Old Colony.	
2	Versuilles	.1	S. Redipped, F. S. Engle, P. S. Monougaleda, P. S.	
Wallace, Banfield & Co., Ltd Irondale, O 10 10 Yes., Iron.	Ξ	\c\2	Iron Iron	
Western Tin Plate Works Belleville, III 1	>	dale	A A dade A	

# THE RETAIL STORE.

#### The Champion Filter.

The accompanying illustrations show a filter offered by the Champion Safety Lock Company, 74 Frankfort street, Cleveland, Ohio. The filter is made of

stone through which the water filters. It is stated that it filters a gallon of water in five minutes under ordinary pressure, and that though filtering rapidly it extracts all impure matter, giving the water a clearness equal to that

of the purest springs. It is explained

Fig. 1.-The Champion Filter.

CHAMPION FILER

apecial metal highly finished, and as illustrated in Fig. 1 is convenient in size for attaching to any faucet. The



Fig. 2.-Filtering Stone.

cut represents the filter half its actual signed to accommodate a number of size. In Fig. 2 the metal part of the goods which had heretofore been found filter is cut away, showing the natural troublesome to arrange conveniently.

of the purest springs. It is explained that cleaning the stone of the filth it extracts from the water is one of the natural and indispensable requirements of the proper working of the filter, and that it can be done easily in less than two minutes. A Y is furnished as in Fig. 3, also illustrated in use in Fig. 1, for attaching an extra faucet, so that water can be drawn off for general purposes without interfering with the filter, or to enable a person to draw the warm



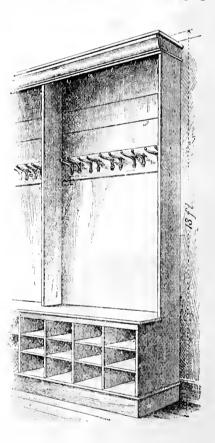
Fig. 3.-The Y for Extra Faucet.

water from the pipe so as to get cool water from the filter.

### An All the Year Round Rack.

We are indebted to C. T. Rosenthal, Batesville, Ark., for a sketch and description of the very useful rack illustrated herewith. It conforms in size to the shelving in the store and was designed to accommodate a number of goods which had heretofore been found troublesome to arrange conveniently.

The shelves below the ledge are 36 inches deep, the spaces above being 18 inches deep. In summer the 24 openings below are used for Axe, Pick, Maul, D Shovel and other Handles, Pipe Tongs, Blacksmiths' Tongs, Wood Bench Screws, Hames and Grass, Lawn and Bush Scythes. In winter the Scythes are replaced by Fire Shovels and Tongs, Grain Scythes are too long for the shelves and are placed upright in the space above the ledge immediately above the shorter Scythes. The openings above the ledge are used for Hay, Manure and Spading Forks and similar goods, the long handled articles, arranged in pairs, being hung on the large harness hooks, the space between just admitting the handles. The D handled goods are stood on the ledge, the handles resting against the wall between the handles of the hanging



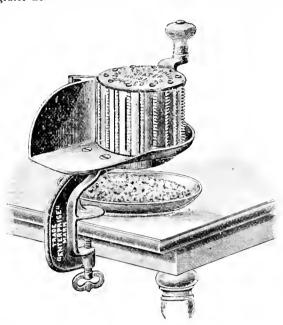
An All the Year Round Rack.

goods. In winter, when Hay and Spading Forks are out of season, they are replaced by long and D handled Shovels, Scoops, &c. At the top, above the harness hooks, large screw hooks are nsed for hanging Wood Saws, Coal Hods and Seed Sowers, each in their season.

H. LESTER, Rochester, N. Y., is changing the front of his hardware and stove store. He is putting in plate glass windows, and has erected a six atory building in the rear of his present location. He will carry a line of furniture, carpets and household goods in addition to the goods handled by him in the past.

#### Enterprise Grater No. 93.

The Enterprise Mfg. Company of Pennsylvania, Philadelphia, for whom J. C. McCarty & Co. are agents, 97 Chambers street, New York, are offering the tinned grater herewith illustrated. supplied, so that lemonade may be shaken. The extractor and two glasses make the combination juice extractor, shaker, strainer and mixer, and are packed together in one box. In Fig. 2 the set is shown made entirely of aluminum with the extractor locked between



Enterprise Grater No. 93.

In use it is clamped to a table or shelf and the article to be grated is placed on the platform and fed or pushed against the revolving cylinder. The grater is especially adapted for grating horseradish, cocoanut, &c, and can no doubt be used for many purposes by hotels, restaurants and private families.

#### Aluminum Juice Extractors.

The cuts here shown represent alumicum juice extactors put on the market by Silver & Co., 304 310 Hewes street,



Fig. 1.—Juice Extractor, Shaker, Strainer and Mixer.

Brooklyn, N. Y. The extractor shown between the two glasses in Fig. 1 is stamped from pure aluminum, and is made to fit the glasses with which it Is

the cups, weighing complete, it is stated, less than 3 ounces. The cups hold ½ pint each and as they



Fig. 2.—Aluminum Shaker, Strainer and Mixer.

nest in a package 3 x 4 inches are adapted to use in traveling and at picnics. The squeezer and shaker in Fig.

is placed. After the juice has been extracted and water and sugar added, an empty glass is placed on the top of the extractor, when the contents may be thoroughly shaken, and the liquid strained off, leaving the seeds and pulp in the strainer. The extractor in Fig. 4 forms both a juice extractor and juice receptacle, complete in one piece. It is 4 Inches in diameter, 2 inches high, and weighs less than 1 ounce. The manufacturers claim for these alumlum extractors that they are practically unbreakable; that there is no danger of



Fig. 4.—Aluminum Cup Juice Extractor.

particles of glass getting into the beverage; that there are no sharp edges to cut the fingers or to do harm; that they are as pure as gold and as strong as steel, and that they are not affected by fruit acids of any kind.

#### Erie Aluminum Hollow Ware.

Griswold Mfg. Company, Erie, Pa., have added to their line of extra finished hollow ware, tea kettles and preserving kettles cast in pure aluminum. The tea kettles are cast all in one piece, having no spout to melt off, no seams to open and no chance for leakage. The manufacturers state that pouring cold water into them when hot will not injure them, that they will not melt on the stove, and that water boils in the aluminum kettle in one-third less time than in tin or copper. The preserving kettle is cast in 4.6 and 8 quart sizes, with a rim on the bottom to equalize the heat and to prevent burning. The manufacturers claim for the kettles that acids will not affect them, that there is no enamel to flake off or plating to wear off, and that oatmeal, rice, puddings, &c., can be cooked in them without scorching. The point is made that the kettles will not tarnish or corrode, and that they are stiff, firm and indestructible.

A bill which has recently been Introduced in the Senate forblds the trans-

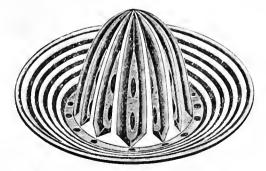


Fig. 3.—Aluminum Squeezer and Shaker.

3 has perforations around the base of the cone through which the juice runs into the glass upon which the squeezer

portation of certain explosives and combustibles on steamers carrying passengers.

# STOVE TRADE NOTES.

The New England Stove Trade.

The stove trade in New England, llke Brer Rabbit, is "lying low." About all the business there is doing is in ranges, and that is extremely light. Not many traveling salesmen have as vet started out on the fall campaign, but there is a considerable number that keep going the year round, and from these reports are not particularly encouraging, although, as has been the case for some time past, there is a hopeful feeling. Many of the local foundries will be shut down for at least a part of the month of July. It is the custom of manufacturers in this vicinity to run on stock during May and June, as it has been found that stoves can be produced cheaper during these months than at any other period of the year. Artificial light, a considerable item of expense, is not required, and the men are usually in a good physical condition and capable of doing more work than when the lethargy of midsummer is upon them. This year has brought no change in the usual custom, but, after the conservative fashion of the times, manufacturers have been extremely careful in asserting their stocks and in some cases have made up less goods than heretofore.

A number of entirely new stoves have been prepared for the fall trade and many others have been made over by using the old body patterns and adding a new dress to the outside. These, of course, masquerade as new stoves, which in a sense they are. Retailers in the mill towns of Massachusetts and Rhode Island look for improved business after Congress adjourns, but at present their trade is much depressed by the enforced idleness of a large part of the population. Collections are rather slow, if anything a little slower than last month. Credits are being scrutinized even more carefully than heretcfore, and the smaller trade is reported as paying more promptly than the larger. Prices, on the whole, are well maintained.

Furnaces are moving rather slowly, although there seems to be the promise of much building later. There is considerable competition in this line in the vicinity of Boston, which is resulting in some little cutting of prices, although not enough to affect the trade generally.

Gasoline stoves continue to boom and this is about the only department of the trade that shows much signs of life.

The refrigerator business is dull and has not realized the hopes of the trade. One department store in Boston, which at this time last year was selling on an average of 100 refrigerators a week, is now getting rid of but 25. House-keepers have caught the spirit of economy which prevails everywhere and are making their old refrigerators do for another season.

## The Chicago Stove Trade.

Trade in coal goods has taken quite a start within the past two or three Some establishments in fact may now call themselves fairly busy. Still, there are complaints of dullness and lack of orders in some directions. This is especially the case with those who coufine themselves to a limited Special causes dominate trade largely this year, and those who cover the largest area are getting the There are portions of the best results. West which have in the past been heavy purchasers of stoves that are this year not expected to take more than a third of their usual quantity. The extreme Northwest will probably show up badly in the season's footings on account of the very low price of wheat. So will the mining sections in which silver has hitherto been a leading metal. They have not recovered from their depression as yet and will buy very aparingly. Crop prospects are improving throughout the West generally and farmers are getting a little more hopeful of the future and, of course, impart the same feeling to their local merchants.

The trade in oil heaters, which has become such a feature in recent years, promises to be still more so this year. Orders are being received by manufacturers in much greater number than at the corresponding time last year or the previous year. These portable heaters have proved to be so convenient as auxiliaries to other forms of heating that they have apparently opened up a distinct field for themselves.

The strike of railroad men has for the present interfered seriously with the Chicago stove trade by almost totally preventing shipments out of the city. Very few roads have for the past few days received any freight whatever, owing to their utter inability to promise anything like prompt shipment. The magnitude of the strike, however, argues strongly in favor of its early settlement in some fashion.

## The Thomas White Stove Company

of Quincy, Ill., favor us with a copy of the thirty second annual catalogue and price-list which they have just issued, price-list which they have just issued, relating to stoves, ranges and hollow ware. It is printed on a good quality of calendered paper and bound in colored paper covers. The opening pages are devoted to the company's lines of ranges and cook stoves for burning coal. The ranges include the Royal, a subatantial six-hole construction, made in a number of atyles and sizes; the Home Royal, a new six-hole stove made in one size and embodying the latest features of construction and ornamentation; the Royal Herald, also made in one size, and the Prize Royal A. The cook stoves are offered under the names Royal Prize, Royal Gem City and Harmony. Following these are the wood burning constructions, the Royal Gem City and the Royal City ranges and cook atoves. The leading place among the heaters is given to the Royal Princess, to which a new size has recently been added. This stove is of the Todd class, handsomely ornamented, and has proven exceedingly popular with the trade. The Rainbow is another new Todd, made in several sizes, following which we find the Prince Royal base heater; the Ocean Wave box; the Charm Oak surface burning base heater for soft coal; the Charm soft coal base heater; the Royal Oak; the Novelty, Silver, Argus, and a price-list of stove hollow ware.

## German Cooking and Heating Apparatus.

We have at different times in the past called attention to the character of the cooking and heating apparatus generally employed in foreign countries, but the subject always has interest to American readers for the reason, no doubt, that the visitor abroad usually describes what is seen from his or her individual atandpoint. In this way the same topic variously treated is the source of much that is entertaining and instructive. A correspondent of one of the New York daily papers tells in a recent issue about the apartment houses in Berlin, and after describing their general construction and arrangement touches upon the questions of heating and cooking with the appliances necessary therefor. The states that in none of the writer houses is steam heat or hot air furnaces employed. In all the rooms, she says, are large stoves reaching from floor to ceiling, made of colored or white porcelain tiles, with brass or nickel doors and trimmings. Some of them are exceedingly artistic and ornamental, while others are painfully suggestive of a family monument. Briquettes of pressed coal, about 8 inches long, 2 wide and 14 thick, are burned, and the fire must be made every morning. The fire place is very small and is in the lower part of the stove, while the upper part is filled under the tiles with coiled iron plpe. A little paper and a few small dry sticks are laid in the fire place, and from 10 to 20 briquettes placed on top. lighted and allowed to burn with open door until the briquettes are all aglow and just ready to crumble. The doors are then closed and screwed up tight with a key, so that no draft can enter. The tiles soon begin to radiate a gentle heat communicated to them by the coil of iron pipe, which holds the heat for some hours. At no time is the stove so hot but that you can bear your hand on it. These "Berliner ceven," as they are called, are made with fancy mantels on them, which always bear numerous pieces of bric a-brac, and are ornamented with delicate lambrequins and scarfs. The rooms can be kept warm and the heat is a pleasant one, but the floors are generally very cold.

#### Kitchen Stove.

The kitchen stove is a curious structure to American eyes. It also is made of white porcelain tiles, with polished brass doors and trimmings and an iron

top. The ordinary German "koch machine" has only one hole, which is directly over the grate, but this is covered by a series of concentric rings, so that it may be regulated to suit the size of the pot. Directly over the grate and around this hole the stove becomes very hot, but on any other part of the stove dishes may be aet with perfect safety. A mixture of coke and soft coal is burned, and the fire is allowed to go out after each meal, but it is so eas-ily lighted and burns so freely that one can make a fresh fire and have boiling water in 15 or 20 minutes. The baking ovens, two in number, are back of the stove and are heated by a separate fire made directly under them, and made only when necessary. The oven may be made hot in about 20 minutes, but though admirably adapted for meats, the heat from below is so great that puddings and cakes will burn badly on the bottom before they are half baked. The Germans never bake cake and bread as we do. They always buy the latter, and if they occasionally make the former, they

and it out to a baker to be baked; these ovens are, therefore, admirably adapted to the German housekeeping. Americans can also use them, however. By long experience, some American ladies found that a sheet of thick asbestos paper cut to fit the bottom of the oven, and laid in just before setting a cake in, would sufciently reduce the direct heat and so diffuse it that cakes, biscuits and pies could be successfully baked, but bread burned before becoming cooked through. There is a small warming oven in the stove, and the water in the kitchen sinks is heated by it, but the bath water must be heated by a separate fire made under a boiler-like tank in the bathroom.

THE TROY NICKEL WORKS of Troy, N. Y., are distributing a folder which relates to the Alaska stove trimmings, of which they are the manufacturers. The inside pages carry a picture entitled "The Result of the Panic," and the statement that Alaska stove trimmings are on top. Illustrations are given of Alaska goods, together with the warning, "Don't Burn Your Fingers."

#### B. C. Bibb.

The trade of the country will learn with regret that B. C. Bibb, president of the B. C. Bibb Stove Company of Baltimore, Md., died at his home in Baltimore on Saturday, the 23d ult. He was within three months of completing his seventy-ninth year, having been born in September, 1815, at Fredericksburg, Va., where he received his education. When quite a young man he became clerk on one of the steamers plying on the Rappahannock River between Fredericksburg and Baltimore, which position he held for a few years. He afterward obtained a clerkship with the Adams Express Company, that company being then in its infancy, and was associated with the late S. M. Shoemaker, the manager of the Baltimore office. He, however, remained but a short time in this position, leaving it to



B. C. BIBB.

embark in the stove business, and establishing himself with a partner at the corner of Light and Balderston streets in Baltimore, under the firm name of Robins & Bibb. Some years later the firm dissolved and Mr. Bibb continued the business under the style of Bibb & Co. He subsequently took his only son, Bentley, into the business, and the name of the firm became B. C. Bibb & Son, under which name it continued until 1888, when the firm became an incorporated company under the present name of the B. C. Bibb Stove Company.

Since its establishment the business has been conducted in the same premises, although additions and improvements have been made. Until about 1882 the business was for the most part a jobbing business. In that year Mr. Bibb purchased the foundry formerly owned and conducted by Armstrong & Co. in Baltimore and commenced to manufacture stoves. He was one of the original inventors of what was at one time known as the Latrobe stove, but latterly as the Baltimore fire place heater. Considerable and frequent litigation resulted in connection with the

patents covering his designs and inventions; but in all the different suits he met with success. Shortly after the incorporation of the business he lost his son, who had been elected vice-president, and this proved to be a great shock to him. In 1891 he met further trouble in the death of his wife, and these blows no doubt ten led to hasten his end. He was, however, active almost to the last, his death being due to a general debilitation from which he had suffered from the beginning of the year.

He was not identified with any organization political or otherwise, but was a very worthy citizen, a man of the highest integrity and one whose word was ever as good as his bond. He was of a kind and cheerful disposition, very domesticated in his habits and was held in the highest esteem by all who knew him. The likeness presented herewith

The likeness presented herewith is reproduced from a late photograph. He leaves two daughters, wives of A. W. Stehman, the treasurer and manager of the company, and Dr. Walton Saunders of Virginia. The only institution in which Mr. Bibb was prominently interested was the Hopkins Place Savings Bank, Baltimore, of which he was one of the incorporators.

## The Fuller & Warren Company.

We are indebted to the above concern, with main office at Troy, N. Y., and branches in New York, Boston, Buffalo, Chicago and Milwaukee, for a copy of a special illustrated catalogue of ranges, cook stoves and heaters, which are presented in extensive and varied assortment. The volume is made up of nearly 130 pages, among the first of which we find a telegraphic code with directions for using it, prices, terms, &c. The company's line of wrought steel oven ranges is first considered, this stove embodying the modern features and is offered in a

embodying the modern features and is offered in a variety of styles and sizes. It is made both portable form and brick set. Following it are wrought ateel broilers made of heavy wrought steel, with all exposed parts thoroughly protected. The P. P. Stewart range is next in order, the atatement being made that over 2,000,-000 of Stewart stoves have been made and sold. The F. & W. Co. range occupies several pages, as does also the Eastern Stewart, a recent addition to the company's assortment and made for burning hard or soft coal or wood. Nearly 50 pages of the catalogue are devoted to ranges, which include besides those already mentioned the Germania, the Diamond Signal, Diamond Advance, Rescue and Clinton.
These are all fitted with the company's patent oval fire box and triple interchanging grates with new basket wood The cook stoves occupy several pages, these in turn being followed by the company's line of heaters, which comprise the Splendid, the Square Splendid, the Splendid Stewart and the Art Splendid self feeding base burners for hard coal; the Matchless Diamond, a low priced self feeding base burner; the Stewart Square, the Stewart Round

and the Stewart Oral hard coal surface burners, made in single or double sections, with certain sizes arranged as double heaters; the Stewart Air Tight, a new construction of elaborate design and ornamentation intended for burning soft coal, coke or lignite; the Stewart Oak, Junior Oak and Putnam Oak, together with a large assortment of wood burning constructions, consisting of the Stewart, Cottage Diamond, Triumph, Onward and Trojan. There are also shown Franklin stoves, fire place heaters, cylinder, globe, laundry and tailor stoves. An extensive price list, directions for ordering repairs and a comprehensive index are features of the closing pages.

### The Electric Oil Stove Company

of Homer, Mich., have issued a handsome 48-page catalogue of their specialties, bound in an embossed paper cover. As a frontispiece a fine portrait is given of B. F. Goodrich. Theu comes a view of the company's works and othices, followed by a map of Michigan, showing the location of Homer and its superior shipping facilities. After a few pages of general information the No. 30 Electrie oil heater is illustrated and very theroughly described. The No. 22 heater is next taken up, followed by the No. 15, the No. 35 and the No. 5. In each case the details of construction and operation are more than usually full, but in order to still more clearly explain their special features a sectional view is given showing the principles of hot air circulation, radiation and water evaporation involved in the construction of all the Electric stoves. The fount and the burner are likewise illustrated and described. Cuts are also presented of heaters with their radiating drums removed and replaced by extension tops for cooking. A section of the catalogue is devoted to oil ranges and cooking stoves. The ranges shown comprise the No. 12 four-burner Electric, the No. 120 four-burner, the No. 121 four-burner, the No. 121 four-burner, with elevated shelf and oven, the No. 40 two-burner, the No. 4 two burner and the No. 8 two burner. The cook atoves are the No. 6 oneburner, the No. 1 lamp stove and the No. 2 double burner lamp stove. The variety thus presented covers every requirement in the oil heating and cooking line. The contents close with the illustrations of different styles of ovena, adapted to the several stoves and ranges.

## ODD PLATES.

THE SITUATION in regard to the consolldation of the interests of some of the leading vapor and gas stove manufacturers remains without important change from our latest published reports. Progress is being made looking to the end sought and it is confidently expected that on the date specified the formal transfer will be made to the United Vapor & Gas Stove Company.

S. B. Sexton & Son, Baltimore, Md., have placed on the market this season Sexton's improved low down radiating furnace, made in four sizes portable form and three sizes brick set. It has been designed to meet the demand for a furnace suitable for low cellars without a furnace pit, and also to give more room for the elevation of the hot air pipes. Combustion of gas and smoke products is obtained at the points entering the side radiator, where there is a commingling of the unconsumed products, the heat of which expands and fills the lower radiator, extracting and

radiating the heat before reaching the smoke pipe. It has a heavy cast iron dome, made in one piece and gas tight. The radiators are of ample size and so arranged as to allow a sufficient space between them and the fire pot for the passage of cold air. This is a leading feature of the furnaces and, it is claimed, one particularly illustrated in the lower radiator, the bottom of which, being placed about on a level with the grate bed, acts as a trench plate and equally distributes the cold air. The cylinder and side and back radiating tubes are made of heavy rolled steel, while the lower radiator is of cast iron, and has a clean out door in the rear outside of the casing. The feed door is lined with an inside per-forated plate, whereby the door is protected and the gas burned by the admission of air. The furnace has a large water pan projecting in front, a deep and roomy ash pan and a prismatic grate. The radiators and flues being large admit, it is clalmed, of the suc-cessful burning of aoft coal. The firm are also introducing the improved New Baltimore range, with horizontal boller and hot air attachment, the latest addi-tion to their New Baltimore line. This is a six-hole range, having flue construction for applying heat to each hole simultaneously, reversible hot air collar and pipe on top of range, and cold air grating on each side of base. boiler is supported by open ornamental brackets, and is constructed to stand high pressure. The range is made in two sizes and four styles, with either right or left hand fire boxes, and with or without warming closeta. is also made to suit a vertical boiler.

THE DANVILLE STOVE WORKS of Danville, Pa., announce for the fall season of 1894 four new lines of parlor stoves and a new range, which is offered the trade under the name Beaver. These goods are first class in all particulars and are claimed to possess selling qualities which place them in the front rank of standard goods. The company state that their representative will call on the trade in due season. The New York office of the company is at 282–286 Pearl street, and is under the able management of A. L. Canfield.

An ARDENT ADMIRER of the Jewel atoves thus grandiloquently speaks of their wide apread popularity: "From roaring London northward to the Cheviot Hills, in the craggy land of the heather and the harebell, in the green island where the shamrock grows, in the provinces through which, in vinectad valleys, the castled Rhine wanders, in gay and prosperous France, in the Dutch countries by the Zuyder Zee, in the land of the Sultan, by Danube's dark stream, in the sad empire of the Czar, in the shadowa of the Carpathiana, among the hills and mountains through which the blue Guadalquiver pursues its devious way, in the enterprising metropolis by which the Rio de la Plata rolls its broad flood seaward, in the antipodal cities of the Australasian world, in the lovely r.a'm of the Mikado, in every section of our own glorious Yankceland, in short, in whatsoever civilized countries the modern globe trotter journeys there will he find Jewel atoves and ranges, and he finally learns to accept the presence of Jewels in any country as a aort of sign of that country's intellectual advancement."

Chas, Noble & Co. of Philadelphia, Pa., are working on several new articles for the coming season. Among those already on the market are the

Liberty steel range in 17 sizes, with 4 to 12 holes and with and without hot closets; the Hustler, a five-hole range, with open end, nickeled name plate and double tiles; the Mascotte, a five-hole range, with plain end, nickeled name plate and double tiles, and the Corker, a plain end five hole range. The five hole ranges are introduced in response to a demand for a cheap and serviceable range. They have also placed on the market the Acme, a sheet iron base burning heating stove, of low price, with and without nickeled ralls and nickel urn.

THE PAPER READ by Joseph Leon Gobeille before the National Association of Stove Manufacturers at their last meeting in Chicago has been brought out in pamphlet form with all the neatness and eccentricity that might be looked for in a publication of Mr. Gobeille's. The front cover carries a musical and chromatic scale under the title. The pamphlet is "Imprinted at Detrolt," the address was "Spoken in Chicago" and at the end is an "Afterword." The latter informs us that there have been "Ten tallish copies printed." The trade will be interested in getting copies of this characteristic monograph. We understand from the Gobeille Pattern Company of Cleveland, Ohio, that they are very busy, running over 100 men on patterns, and they give the hopeful news that business acems to be picking up a little.

THE FIRE which damaged the foundry of Bridgetord & Co., at Louisville, Ky., a short time ago is thus briefly deacribed by a local paper: "The fire originated in the central part of the building, near the cupola, and probably ignited from it. The firemen experienced considerable difficulty in reaching the center of the building, and the flamea apread rapidly through the molding shed into the pattern shop, where thou-sands of valuable patterns were stored. These were soon consumed and were nearly a total loss. Those not destroyed by fire were ruined by water. In the third story of the building were hundreds of finished stoves, ready for the market. The floor supporting them was burned away, and they fell with a crash to the ground beneath. Many were broken and the loss will be considerable from them. After three hours of stubborn fighting the fire was extinguished. The insurance is placed entirely with New York companies and will fully cover the loss. The damaged part of the foundry will at once be rebuilt, but the loss of the patterns may delay the work in the foundry until they can be replaced."

Joseph Leon Gobelle of the Gobeille Pattern Company, Cleveland, Ohio, sailed for Europe on the "Normannia" on last Thursday. He proposes to attend the meeting of the dealgners of ornamental metal, marble and wood work, at Lyons, where he will look into the finer methods of casting, such as the reproduction of lace, &c. With Mr. Gobeille's well-known interest in the artistic side of his work there is no doubt but the trade will ultimately get much benefit from all that he learns abroad.

Walters, Walker & Co. of 106 Market street, Pittaburgh, Pa., issue a neat advertising card, upon one side of which is the following inscription: "If you use a Bellwood range you will have no trouble with baking or cooking." On the other side it reads, "Please do not tell me your troubles, as I have troubles of my own. Your troubles

will be lessened if you use a Bellwood range."

THE DETROIT STOVE WORKS of Detroit, Mich., are the latest addition to the ranks of gas stove makers. They have just completed one size of what is known as the Faultless Jewel gas range, for which strong claims are made.

GEO. D. HOFFMAN, 82 Lake street, Chicago, has been appointed general Western manager for the Craig-Reynolds Foundry Company of Dayton, Ohio. He will control the States of Indiana, Illinois, Kentucky, Missouri, Kansas, Nebraska, Iowa, Wisconsin, Minnesota and the Dakotas. The Hoffman-Russell Company will handle the agency for Chicago and Cook County. In addition to the Triumph warm air furnace the company have agreed to enter into the manufacture of furnaces of special designs to meet the views of Mr. Hoffman. Catalogues descriptive of the new furnaces, which will embody important features in furnace construction, will be ready about the 15th inst.

THE A. C. BARLER MFG. COMPANY, 113 Lake street, Chicago, will continue to manufacture their Ideal No. 12 oil heater, which has been made for the past three seasons with great success, introducing some new features which they believe will make it still more popular. They have added two smaller sizes for this year's trade, named Ideal No. 6 and Radiant No. 5. The No. 6 possesses all the features of first-class construction and is offered at a moderate price. While the No. 5 is the same in general construction, it is finished only in part nickel so as to make it still cheaper. These two new heaters are constructed on a novel method of circulating air, in addition to heating by radiation, on which application for patent has been made. The company report the fall trade opening up well, with orders coming in from numbers of new customers.

THE CHICAGO STOVE & RANGE COM-PANY, whose quarters at 45 and 47 Lake street were recently burned, have removed their office temporarily to 41 State street, with the Abram Cox Stove Company.

RATHBONE, SARD & Co. sing the praises of Autora, Ill. It is the ideal stove manufacturing town. The stoves almost grow there. It is not afflicted by droughts, famine, lack of business or strikes. The Chicago stove houses may suffer on account of the great railroad strike which stops their traffic, but shipments from Aurora go forth with the regularity of the solar system and the persistency of the tides.

ADAM REED, Buffalo, N. Y., reports a lively demand for Reed's Combination bake oven, due to the opening of the summer resorts throughout the country. With this oven pastry, bread and meats of all kinds can be baked in large quantities with a saving in both time and fuel.

A. T. Nye & Son of Marietta, Ohio, have made several additions to their already extensive assortment of stoves, brief reference to which may prove interesting to the trade. They have added to their well known line of Popular wood cooks three sizes having ovens ranging from 16 x 18 to 22 x 24 inches in size. They have also added to the five larger sizes of these goods end shelves, oven door openers and outside oven shelves. The manufacturers state that the demand for this stove last year

exceeded their expectations, and they have found it necessary to provide increased facilities for a larger output. The goods are referred to as being made of first-class material by first-class workmen, the design modern and attractive, and the stove as meeting with a good demand.

BUTLER & JOHNSON, Syracuse, N. Y., state that they have sold eight carloads of the Splendid oil cook stoves made by the Novelty Mfg. Company, Jackson, Mich. This stove is provided with circular central draft burners, the oil being fed to the wicks as consumed from a horizontal tank placed behind the burners. It is claimed that in a test only one and one-half minutes more were required in boiling 1 gallon of water on one of these oil stoves than for performing the same operation on a gas burning This, it is claimed, indiconstruction. cates a more intense heat than has prevlously been secured from devices of this character. Another feature which renders this stove popular with the trade is its safety in use.

THE STANDARD GAS BURNER COMPANY, Buffalo, N. Y., make a large line of heating stoves, cook stoves and also burners for furnaces. The cook stove burners are arranged to provide a circular flame under each of the cooking holes, and a long narrow sheet of flame to play directly up against the water back. The furnace burners are made from 12 to 24 inches in diameter and in two, three and four sections, so that a portion or the entire burner may be used, as desired.

The Syracuse Stove Works, Syracuse, N. Y., closed down their plant for a short period, and during the shut down improved the opportunity to install automatic sprinkling apparatus in all their buildings. They have also built a pumping engine house and have connected a 500-gallon pumping engine with both the city water mains and the canal running by their plant. They are thus well provided with water in case of fire. One of their latest productions is the Welcome double oven range, designed for use in large cities and possessing a number of special features.

The Kelsey Furnace Company, Syracuse, N. Y., report that the Kelsey furnace is increasing in popularity with the trade. They have recently established agencies in Washington, D. C., with A. S. Johnson; with L. V. Sanford, 587 Fulton street, Brooklyn, N. Y., and at 113 Beekman street, New York. They have just put into the sand a set of patterns for a new size of their furnace, having a 21-inch fire pot.

The Furnace Regulating Company, 49 West Chippewa street, Buffalo, N. Y., make a specialty of the Waldurff chronometric adjuster for use in connection with gas for heating and cooking. By means of the clockwork the kitchen fire can be lighted at any time to which the adjuster is set.

THE PENNSYLVANIA GAS FURNACE COMPANY, 71 West Chippews street, Buffalo, N. Y., are erecting a manufacturing plant at Seneca and Imson streets. This will be a large two-story building and entirely devoted to the manufacture of their specialties, as they have large warehouse facilities close at hand. Their furnace is constructed entirely of sheet steel, and those heaters having passed through one winter's use are said to show so little wear that no difficulty is expected from rusting out. The method of burning gas in this fur-

nace is somewhat different from the plan followed in the ordinary gas burning furnace and is claimed to result in great economy. They report the placing of orders with them for the fall.

THE BOYNTON FURNACE COMPANY of 207-209 Water street, New York and 195-197 Lake street, Chicago, Ill., have issued a Western edition of their catslogue of furnaces and heaters embodying the modern features. It is a pamphlet of over 20 pages of letterpress, profusely illustrated and containing much that is of interest and value to dealers generally, and particularly to those handling the company's goods. Several new constructions have been added to the manufacturers' assortment, among which may be mentioned Boynton's afect dome re turn flue furnace for hard or soft coal, and Boynton's steel dome return flue furnace with water heating combination, made in four sizes portable form and three sizes for brick work. Iflustrations of other goods include Bovnton's New Crussder, Boynton's New Gas Tight, and Boynton's Niagara furnaces, accompanied by a table showing the comparative and approximate heating capacity of the aeveral varieties made. We also find illustrations of Boynton's fire place heaters, the Newport, Danube and New Lakewood ranges and also of Boynton's Niagara water heater.

THE DETROIT STOVE WORKS, Detroit, Mich., received on July 2 an order for 62 stoves embracing a complete assortment of the Jewel line, being a total of 14 styles of ranges and heating stoves. The order is for shipment to Constantinople.

Press reports from Louisville, Ky., are to the effect that on the night of July 2 the four-story brick warehouse of Stratton & Terstegge, at the corner of Bank and Duncan streets, was gutted by fire. The building was stocked with stores and tinners' supplies. The loss was largely covered by insurance.

The Cleveland Co operative Stove Company of Cleveland, Ohio, announce that they have secured the services of A. E. Wells as sales manager for the States of Indiana and Iillnois. Mr. Wells was with the company for ten years as manager of their indianapolis branch, and is favorably known to the trade through his fifteen years' connection with them. The company have this season added to their already extensive assortment many new stoves, and will carry at Indianapolis s atock of certain lines for the purpose of supplying that city and surrounding country.

## The Gas Stove Question Abroad.

At the annual meeting of the Incorporated (as Institute recently held in London, the president offered some remarks on the subject of gas atoves which may prove interesting to American readers. Among other things he said:

If our many and great undertakings are to increase their usefulness and commercial prosperity, it is of paramount importance that both companies and corporations should take a deep interest in all the departments of their respective undertakings—from the making of the gas on the works to the lighting, heating, cooking, motive power, and all other purposes for which it is required—and that they should be in a position to advise their customers as to the most econom-

leal and scientific way of utilizing gas It is admitted that as for all purposes. this idea is carried out throughout the country, as is already being done with considerable success by many gas undertakings, you will have some special trades trying to make out that you are interfering with their business. There is, in fact, already an effort being made by a large section of very respectable fronmengers, who are deavoring to form themselves into an association for the purpose of trying to persuade gas companies that it would be to their advantage to hand over entirely to them their business of selling gas fittings and letting out stoves, &c. My advice to the gas industry is. Do not accept their suggestions; and I certainly think that It is very courageous of them to enter upon your preserves, and at the same time to ask you to give your birthright. You might just tell these gentlemen that in many places, especially in London, they had the trade in their own hands for years, and made very little use of it. It was proved they were unable to meet the want of the age, hence the gas companies were themselves forced to look after their own and their customers' interests, and increase the consumption of gas by every means at their disposal, and at the same time to satisfy the longing desire of their customers, who undoubtedly should be the first to receive their special consideration. The consumers have certainly shown by their adaptations of the means offered that the privilege of cooking and heating by gas, after being put before them in a practical manner by gas companies, has been accepted in a most remarkable manner throughout the country. Many of the most important ironmongers are pushing the sale of commodities which are in direct opposition to the interests of the gas industry; therefore it would certainly be unadvisable to leave entirely in their hands the sale of articles which are so hands the sale of articles which are so vitally important to its welfare. The question arises, Would the 95,000 stoves, in London alone, hired out by the Gas Light & Coke Company and the South Metropolitan Gas Company, have been in use at the present time if the companies had not moved in the matter themselves? It so happens that I have a knowledge, from practical experience, of this question; and I maintain that to gas engineers belong, as ploneers, the designing, the making, and the introduction of appliances for cooking and heating by gas, and that the 'trade,' as they now style themselves, did not commence their manufacture and sale until a more recent period. The late Mr. Sharp, South-ampton, was one of the leading men who gave displays and lectures at the old Polytechnic Institution and other places about 50 years ago. Then, again, Mr. Goddard, Ipswich, in very early days both sold and let out on hire gas fittings and gas stoves; and you will find that one of the first papers read by this gentleman before the British Association of Gas Managers was as to the advantages of gas for heating purposes. When I was articled to the gas engineer at Northampton, about 40 years ago, the company at that time possessed large showrooms, containing cooking appliances and gas fittings of all kinds, and employed a large staff of fitters, who did all the work in the town. At that period the making of gas cooking and heating appliances of all descriptions had already been in operation for many years; and all of them were sold to customers in the ordinary way of business at a fair profit. This depart-

ment was kept separate and distinct. I have always refrained from going into severe competition with the trade; but I have endeavored to sell them as cheaply as possible fittings and other things they did not possess, so that they could make a profit for themselves. Our chief and primary duty is to set an example by putting in pipes of the proper size, and introducing the best kinds of burners for the economical consumption of gas. A gas company do not care for whole of the business, but only so much as will enable them to protect and further their own interests. My opinion is that If the public knew of the many advantages possessed by cooking stoves, there would be very few houses without them. The further questions of the letting out of cooking atoves on hire, and of their being remunerative in themselves, are very debatable ones. After very considerable experience, my opinion is that the best plan is to sell the stoves out and out to the consumers; but, failing this, to let them out with the option of purchase, upon the three or four years' hire purchase system, which works to the advantage of both the company and the consumer. A large number of instances might be cited where the best burners and proper appliances for cooking and heating by gas would not have been Introduced if the gas engineers and their assistants had not personally persisted in upsetting prejudices and in pointing out the many advantages they possessed.

#### OBITUARY.

SAMUEL B. VAN DUSEN.

Samuel Bonnell Van Dusen, one of the senior partners of the well-known tin plate and metal firm of Dickerson, Van Dusen & Co. of 29 Cliff street, New York City, died at his city home, 61 West Thirty-sixth street, on Monday, July 2, aged 76 years. Mr. Van Dusen's health had been failing for some considerable time, owing to kidney trouble and a complication of diseases incident to old age. The loss of his wife, to whom he was devotedly attached, about two years ago, after a union of nearly half a century, affected him deeply and appears to have undermined his vitality.

mined his vitality.

Samuel B. Van Dusen was born in March, 1818, in Philadelphis, where his father was one of the pioneer Amerlcan shipbuilders. After being educated in the Philadelphia public schools he began his commercial career in a subordinate place in the straw goods business in his native city. While a young man he joined his brother in the coal business in Philadelphia, under the style of Van Dusen. Brother & Co. The firm were extensive operators, and in 1861 Mr. Van Dusen came to this city and opened a branch office in Trinity Buildings, 110 Broadway. 1875 he retired from active business, having smassed a large fortune. In July, 1876, when John S. Dickerson & Co., the metal merchants of 29 Cliff street, reorganized as Dickerson, Van Dusen & Co., he became a partner with Mr. Dickerson and his son Frank, who are still members of the firm. Mr. Van Dusen remained actively connected with it until about six months ago when infirmity compelled him to relinquish his work. He married Sarah Grace Dickerson, a sister of the senior partner of the original firm. They had ten children, of whom five survive-namely, one son, S. Clinton Van Dusen, a partner in Dickerson, Van Dusen & Co., and four married daughters. Mr. Van Dusen was highly esteemed in the

metal trade and in business circles at large as a man of strict integrity and benevolent qualities. By his employees he was beloved.

He was for many years a director of the Greenwich Savings Bank, the New York Eye and Ear Infirmary, and the Colored Orphan Asylum, and was a public school trustee in the Twentieth Ward, from which latter place he retired some 12 or 15 years ago. He was an ardent Abolitionist before and throughout the Rebellion, and his interest in the colored race remained intense throughout his life. His support of religious and benevolent objects was wide. He was large hearted in charity, firm in friendship and devout in religion. Mr. Van Dusen was a deacon of the Madison Avenue Baptist Church at the time of his death. His funeral took place at his home on Thursday morning, July 5, the interment being made in the family plot in Greenwood Cemeterv.

#### BENJAMIN DOUGLAS.

Benjamin Douglas died on Tuesday night, June 26, 1894, at Middletown, Conn. Mr. Douglas was born at Northford, Conn., April 3, 1816, of Scotch sncestry. He acquired the rudiments of his education by a few months' attendance at the district school during the winter while a lad and by extensive reading since then. When 16 years of age, in 1832, he came to Middletown and apprenticed himself to a machinist. In 1839 he joined his brother William, who in 1832 had with W. H. Guild established a machine shop. For three years they carried on the business of an ordinary foundry and machine shop, manufacturing hydraulic rams and pumps. From the invention in 1842 of the celebrated revolving stand pump the success of this firm was established. Year after year the Year after year the business increased until the name of W. & B. Douglas was known the whole world over. They have an extensive trade throughout the world. William Douglas died April 21, 1858. He was Mayor of Middletown from 1849 to 1855, a member of the General Assembly in 1854, a Presidential elector in 1860, and Lieutenant Governor in 1861. Mr. Douglas was a director in the Middletown Gas Company and the Air Line Railroad, and a director and large stockholder in the People's Fire Insurance Company. He was the first president of the First National Bank and continued to hold that office until Hon. John N. Camp was elected, and then he remained as a director until the present time. He was also for years president of the Farmers and Mechanics' Savings

THE CATALOGUE of Brown & Wales. 69-83 Purchase street, Boston, Mass., is a serviceable and comprehensive publication of nearly 300 pages. It is bound in linen backed paper covers, carrying the name of the firm with the word "Metals" and a back title of "Heavy Hardware." It is impossible to give a list of all the articles or even classes of articles enumerated, but a brief summary of what the firm deal in will suffice to indicate what lines of goods are embraced in the catalogue. Iron and Steel, Heavy Hardware, Tin Plate, Sheet Iron Tank Plates, Angles, Tees, Blacksmiths', Machinists' and Tinners Supplies, Corrugated Iron, Steel Roofing, Sheet Brass and Copper, Brass and Copper Tubing, Sheet Zinc, Solder, Babbitt Metals, &c. The volume is very thoroughly Illustrated, contains full price-lists and table of sizes and other essential information.

# TRADE REPORT.

## The Iron Market.

The current requirements of the country continue abnormally low. The markets in raw materials and finished products along the whole line are exceedingly dull, and there is very little business in sight. If continued, the railroad strike would cause some embarrassment to a wide territory by making it difficult for manufacturers to obtain supplies of raw material and to ship product promptly.

While the recording of cheerful news is the most pleasant task which falls to the lot of the journalist, he must not shirk from the duty of truthfully describing the situation, though it be

painful.

The hope had been expressed in the past that a revival of business would acon follow the adjournment of Congress, never mind what that body did finally do with the tariff. In the Iron trade the opinion is still quite universal that our legislators must go home before any improvement whatever can be expected. But the hopes of a prompt recovery are now much less than they were, and at the best a very gradual bettering of business is looked forward to, in spite of low stocks in every branch of the trade.

Pig Iron.—The New York market continues very quiet and is steady, some of the Southern producers having practically withdrawn. We quote standard brands \$12.50 @ \$13 for No. 1; \$11.25 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry Nc.4 (Foundry Forge) is \$9.75 @ \$10.25

Another very active week is reported in local Coke Iton in the Chiesgo market. The volume of business was fully as large as that of the previous week. The month of June closed with a good record, being the heaviest in sales for a long time. Much trouble, however, is now experienced in making shipments to consumers Some representatives of Southern concerns are not making any quotations whatever, as their principals have no Iron to offer. Lake Superior Charcoal continues quiet, and while some of the leading companies firmly maintain prices others are offering strong inducements to consumers. Quotations are given as follows for cash:

Lake Superior Charcoal	\$15.00 @	\$15.50
Local Coke Foundry, No. 1	11.25 @	-11.50
Local Coke Foundry, No. 2	10.50 @	11.00
Local Coke Foundry, No. 3	10.00 @	10.50
Local Scotch	11.50 @	-11.75
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	®	
Southern Coke, No. 2	10.50 @	10.75
Southern Coke, No. 3	10,25 @	10,50
Southern, No. 1, Soft	10.50 @	10.75
Southern, No. 2, Soft	10.25 @	10,50
Tennessee Charcoal, No. 1	@	
Tennessee Charcoal, No. 2	@	11111
Alabama Car Wheel	17.50 Ø	18.00
Jackson County Silvery	15.00 @	16,00

Temporarily there is nothing whatever doing in the Philadelphia Pig Iron market, although the situation has improved to the extent that atocks are held at rather higher figures, owing more to decreased stocks and decreasing production than to any actual im-

provement in demand. Current quotations for Philadelphia and near by points are \$11.50 @ \$12 for No. 2X, and \$12.50 @ \$13 for No. 1X, which average about \$1 less than were quoted six months ago, and are possibly 25¢@ 50¢ better than were ruling three months ago.

There has been a light trade in Pig Iron in the Cincinnati market during the week. There was only a jobbing demand in this district, mainly for single car lots. The resumption of Coal mining has not yet materially increased the production of Pig Iron, and the market is still laboring under the disadvantage of a scarcity of iron, but no one is disposed to pay an advance, as they would have to do to buy any considerable quantity. Some of the Southern furnaces have withdrawn entirely from the market, and say they will not sell until prices advance to a remunerative basia. While prices are not quotably higher, a strong and confident undertone prevails. Quotations are as follows:

Southern Coke, No. 1	\$10,25	@ \$10.10
Southern Coke, No. 2	9.50	@ 9.75
Southern Coke, No. 3	9,25	
Ohio Soft Stone Coal, No. 1	14.50	
Ohio Soft Stone Coal, No. 2	14.00	
Lake Superior Coke, No. 1	12.50	
Lake Superior Coke, No. 2	11.50	@ 12.00
Hanging Rock Charcoal, No. 1	17,00	@ 17.50
Hanging Rock Charcoal, No. 2		@ 17.00
Tennessee Charcoal, No. 1	. 13.00	@ 13.50
Tennessee Charcoai, No. 2	12,00	@ 12.50
Standard Southorn Car Wheel	16.25	@ 17.00
Lake Superior Car Wheel and		•
Mellochie	16.25	@ 16.75

Advices from Louisville, Ky., state the demand in that district continues light on the part of most Iron consumers. Stove companies are almost all shut down, with little work; car companies are either closed entirely or running on small orders; Pipe shops report good business, but prices yet show no improvement with them. Quotations, for cash, f.o.b. cars, Louisville:

### Metal Market.

Plg Tin.—The market has been dull and narrow. Purchases have been on strictly conservative lines, and prices have remained practically unchanged. Jobbers' rates for small lots of Straits Pig from store rule at 20½ @ 21¢ per lb. The visible supply is much above the average for this time of the year. American holdings and stock afloat are estimated at 19,500 tons, being 450 tons more than was recorded on June 1, which would appear to strengthen the popular belief that there is enough Tin in sight to go round.

Copper.—There has been no improvement in home trade or export demand.

Only small orders and comparatively few of those have been placed here. In short, the market has remained positively dull. While wholesale prices have been variable and tending to weakness, retail rates for moderate quantities for spot delivery have held their own at 10½6 ?? It for Lake Superior lugot, with the usual decrease in price for the cheaper varieties. Manufactured Copper has fared no better, orders and inquiries being on a very restricted scale.

Pig Lead.—The market is without quotable change, although the fact that late purchases had cleared up spot stocks and left very little for smelters to send forward during the balance of the month has contributed a firmer feeling to prices, which have shown a rising disposition. This has not affected jobbers' prices for moderate lots of the metal, common Domestic Pig still ranging between 3½¢ and 37½¢ lb, with plenty offering. Forward shipments are, however, at some discount. The stiff prices paid for prompt shipments, in view of the prospective difficulty in obtaining shipments from the West, indicate a positive need of stock.

Spelter.—Buying has been slow in this quarter and inquiries have not increased in any remarkable degree. Orders have gone out from other quarters in sufficient number to have a perceptible effect upon the primary markets and this, in turn, makes it difficult to secure stock for delivery at New York or common point at prices that were common a short time ago. The labor troublea, as affecting transportation of the metal, are likely to induce a further advance, unless the impediments are speedily removed. The demand from galvanizing works is fair, but recent strikes have caused a scarcity of fuel, resulting in the enforced closing down of a number of plants. Weatern Spelter is quoted by retailers at \$4\psi\$ for moderate quantities.

Antimony. — The market has been quiet and prices are easy. For small parcela jobbers' prices are about 10% for Cookson's and 10% for Hallett's.

Nickel.—Quotations range from 43¢ to 50¢, according to delivery and size of lot.

Plates.—Even for a holiday week, the market has been very poor indeed. Dealers complain of extraordinary apathy on the part of consumers in regard to both spot and forward deliveries. Spot business is purely of a hand-to-mouth nature, and orders since the 1st of the month have been almost exclusively for small parcels for immediste use. Supplies here are only fair and the assortment is somewhat broken, but that fact is offset by heavy stocks on the other side, ready for shipment to this country at short notice. The quantity at Swansea is reported as being over 300,000 boxes. Prices here show no improvement, although they are rather higher in England. This market is uncertain largely on account of pending tariff legislation and the peculiar circumstances of the time, and its tone diaplays some weakness, although prices are nominally unchanged.

A special London cable dispatch to The Iron Age of July 3 reports as follows in regard to the British Tin Plate trade: Tin Plate has undergone no decided change. The demand is chichly for small or retail tots. Generally prices are maintained, but some sellers are cutting slightly. The majority are booked ahead and prefer to wait. There is more inquiry for light weight Cokes than for other sorts. Swansea prices are as follows:

Bessemer Cokes, 14 x 20	60	10.3
Stemens Cokes, 14 x 20	66	10 6
Ternes, double box	60	19
Charcoals 13	60	15,

Sheet Iron.-Restriction of production by the closing down of a number of mills on account of wage disputes, fuel scarcity, &c., has had the effect of strengthening prices on Sheet Iron to some extent. While the demand for ordinary Black Sheets is moderate in this section, prices show more firmness. Galvanized Sheets, on the other hand, are in good demand, and manufacturers are not disposed to book orders for forward delivery. While jobbers' discount on moderate quantities from store is still quoted at 75 % @ 75 and 5 % off, the tendency is generally toward asking the higher price, and this appears to have been readily paid of late. Black Sheets of light gauge for tinning are very active, with the supply hardly adequate to the demand.

## Chicago Report.

Scrap.—Dealers continue to quote the following list of buying prices, Chicago delivery:

Per	net ton.	Per lb
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking	2.00	••••
	4.00	
Stock No. 2, such as Shovels, Hoes,	4.00	
	3.00	
&cOld Boilers—whole (Iron)	3.00	
	5.00	
" (Iron)—cut in single	5 00	
Sheets and Rings	5.00	****
Old Gas-Pipe and Boiler	F 00	
Tubes	5.00	••••
Cast Borings		••••
Turnings	4.00	• • • •
Horseshoes	8.00	22.55
Copper Bottoms		5%¢
Copper Clips and Heavy		7 €
Heavy Brass		5 <b></b> %¢
Light Brass		3 0
Pipe Lead		2/40
Tea Lead		2 ¢
Zinc		2 4
Rubber		3%

Anthracite.—Very little business has been done the past week, as the railroad strike has prevented shipments. Carload lots of 12 net tons or over are quoted as follows:

	Egg, Sto	
	Grate.	and Ch
Chicago, Ill	<b>\$5.25</b>	<b>\$5,50</b>
Milwaukee, Wis	5.25	5.50
Kansas City, Mo	8.45	8,70
Council Bluffs, Iowa	8.45	8.70
Lincoln. Neb	8,61	8,85
Stonx City, Iowa	8.45	8.70
Aberdeen, S. Dak	8,50	8,75
Dubuque, Iowa	6,55	6,80
Madison, Wis	6.75	7.00
St. Paul, Minn	7,75	8,00
Burlington, Iowa	6,75	7.00
Des Moines, Iowa	8,20	8,45
Davenport, Iowa	6,55	6,80
St. Joseph, Mo	8.45	8.70
Leavenworth, Kan	8.45	8.70
Omaha, Neb	8,45	8.70
61.3. 3. 4.43		

Volorado Anthracite.	
OOLORADO FUEL & IRON COMPAN	TY.
Denver	\$8.00
Pueblo	8.00
Colorado Springs	
Leadville	8.00
Cheyenne, Wyo	10.00
All points between Denver and	
Missouri River	8,85

#### CONDITION OF THE

## Hardware Trade.

THE PRESENT WEEK, broken as it is by a national holiday and at the commencement of the summer dullness, finds trade reduced to a minimum. A feature of special importance at this time is the great railroad strike, which, besides interfering with current business, is assuming ominous propor-tions and has a disquieting effect on the public mind. There is little new to report in the Hardware market, manufacturers and jobbers as a rule having withdrawn their travelers and are giving little attention to the active prosecution of business. Many of the mills and factories are reducing their production or shutting down entirely for a few weeks in order to enable them to make the necessary repairs and improvements so as to be in efficient condition for future operations. In the matter of prices the market continues as for some time, nearly all goods being offered at very low figures, from which there is yet no recovery. There is. there is yet no recovery. There is, however, a disposition on the part of manufacturers to be conservative in the matter of prices and to refuse to sell goods at unremunerative figures.
The experience of the past year has led prudent manufacturers and merchants to give very careful attention to the manner in which they are conducting their business, scrutinizing costs closely and reducing expenses wherever possible. A further effect of this will probably be found in a more con-servative and careful policy than has characterized the operations of many characterized the operations of many of them in the past, and in this way it is not unlikely that good effect from the peculiarly trying year that has passed wilt be found in trade circles for some time to come. There is a general feeling that while trade for a form weeks will probably be enjoy fell. few weeks will probably be quiet, fall business will be at least fair, and there are some careful observers who are are some careful observers who are anticipating a large demand and a speedy return to normal conditions. Reports in regard to crops are for the most part exceptionally favorable, and there is little general complete in

there is little general complaint in regard to collections.

Advices from Chicago.—Owing to the railroad strike the treight officials are now notifying merchants that they will not receive freight until further notice. This causes some inconvenience, but not so much as it would if trade was active. Business in Shelf Hardware has fallen off considerably during the week. Salesmen are being advised to take their vacations now, and a broad hint is given that they need be in no special hurry to report for resumption of work. Orders are light in every department, but staple goods are decidedly neglected. The Heavy Hardware jobbers are in better shape, having a good steady demand for Iron and Steel. Carriage and Wagon Stock, Blacksmiths' Supplies,

## Notes on Prices.

Wire Nails.—The volume of business, as is to be expected at this season, is small and the mills are all of them either diminishing their output or shutting down altogether for a few weeks. Notwithstanding the limited demand the price is firm, and mannfacturers who a short time ago were quoting \$1.05 for carload lots at mill have withdrawn this figure and the market is now represented by the quotation of \$1.10, which is firmly adhered to. Small lots from store in New York are held at \$1.25 to \$1.30.

Advices from Chicago. — Very little is doing by either manufacturers or job.

bers. Prices from factory are maintained at \$1.20 to \$1.25, Chicago. Jobbers quote \$1.25 on small lots from steck.

Cut Nails. — There has been little change in the Cut Nail market during the past week. The quantities are small, but the mills have no large accumulations of stock on hand. The price for carload lots delivered on dock in New York continues at 95 cents to \$1, the former figure being in most cases readily obtainable. Small lots from store in New York are held at \$1.10 to \$1.15.

Advices from Chicago.—Trade is light and factory prices are unchanged at 95 cents, Chicago, on 55-cent average. Jobbers sell small lots from stock at \$1.15.

Barb Wire.—There is little doing, and prices remain without change, being somewhat uneven, but manufacturers are not attempting to force sales. The market is represented by the following quotations for Four-Point Galvanized, delivered at the points named: Pittsburgh, \$2.05 to \$2.10; Cleveland, \$2.10 to \$2.15; Cincinnati or Allentown, \$2.25 to \$2.30; Chicago or New York, \$2.25 to \$2.30.

Advices from Chicago.—The movement is very light at present, but manufacturers seem to be making no effort to push sales. Jobbers quote small lots of Galvanized at \$2.35 to \$2.40, with 10 cents off for carloads.

Cordage. — The manufacturers of Cordage have made another advance and are now quoting as follows:

Base. Cents.
Manila 734
Sisal 584
New Zealaud 5

There is, however, only a moderate business at these figures, the jobbers being generally in a position to furnish Rope at somewhat lower prices. The market is characterized by a firm tone.

Copper Wire.—For some time past there has been a demoralization in price of Bare and Insulated Copper Wire. Manufacturers of these goods at a recent conference decided to maintain prices on a somewhat higher level, and in conacquence some advances have been announced.

Glass.—Activity among the Window Glass factories of the country ceased June 30, as the fires were put out of blast for the summer. It is conceded that stocks of Glass in first hands are less than for many years at the time of the annual shut down, the amount of Glass at present being estimated at 1,000,000 boxes. Manufacturers usually expect to have an accumulation of Giass for the summer and early fall trade, varylug from 2,000,000 to 4,000,-000 boxes. It is reported that about 100,000 boxes of foreign Window Glass is now in bond awaiting the settlement of the tariff question before the duty is paid. Pittsburgh factory quotations are reported as being from 80 and 10 to 85 per cent. discount, much depending upon the desirability of the order. Orders for Plate Glass are reported plentiful at all the factories now in operation. Quotations are given as 70 per cent. discount for sizes 5 feet and over, and 70 and 10 per cent. discount for sizes 5 feet and under, for New York and New England, on the Eastern list. For the West quotations are reported as 70 and 5 per cent. discount for sizes over 10 feet, and 60 and 20 per cent. discount on sizes 10 feet and less, on the Western list.

PAGE.

Old Metals.—The market for Old Metals has been quiet. Prices remain at the former level, the following quotations representing about the rates paid by dealers in the city for small lots:

Heavy Copper B 6%4
Light and Tinned Copper 2 1 6 \$
Heavy Brass # 1b 4160
Light Brass 19 1b 38, ¢
Lead \$ 1b 21 g¢
Tea Lead # Ib 21, ¢
Zinc # 15 2 ¢
No. 1 Pewter 12 c
No. 2 Pewter
Wrought Scrap Iron # gross ton \$8.00
Heavy Cast Scrap 18 gross ton 7.00
Stove Plate Scrap # gross ton 3.50
Burnt Iron

Old Rags, Paper, &c.—The market for these materials continues very quiet and prices rule low. The following are the current rates paid in New York:

are the current rates paid in New York:
No. 1 White Rags * B S1/4 @ 81/4¢
No. 2 White Rags # 10 2 @ 214
Mixed Rags 1b %¢
Blnes and 3ds 15 1 @ 11/4
Hard Sized White Shavings D 21/4 @ 25/4
No.1 White Book Snavings & D 1% @ 21 4
No.2 White Book Shavings 1 1 1/2 @ 11/4
Light Book Shavings # Ib %¢
No. 1 Mixed Shavings P D 1 @ 11/4
No. 2 Mixed Shavings # b % @ 1 \$
No. 1 Printed Books 1 15 1 @ 1%
Ordinary Mixed Books D b 1/4 @ 1/4
Newspapers 1b 2-5¢
No. 1 Manila Paper 15 1/2 0 1 \$
No. 2 Manila Paper B b % @ %4
Bogus Paper
Common Paper 1b
Straw Chips B D
Binders' Clippings B b
Jute Butts 11/8¢
No. 1 Jute Bagging # 10 1 4
Mixed Bagging 2 b % @ 1 ¢
No. 2 Bagging
Manila Rope
Jute Rope 18 15 11/4 @ 11/4 ¢
Mixed Rope
Old Dubbon A fairly active de-

Old Rubber.—A fairly active demand exists for some lines of Old Rubber. Dealers' purchasing prices, New York delivery, are as follows:

Car oprings, ton low, w io	W	<b>\$0.0072</b>
Rubber Shoes, carloads, de- livered at factory, % b	0	.04%
Rubber shoes, less than car- loads, # lb	0	04
Large Hose, \$\pi\$ ton	0	15.00
White Wringer Rolls, & D	@	.03%
White Syringes, # Ib	- 48	.0071

### Trade Notes.

STACK ELBOWS are shown in some variety in the advertisement of the Excelsior Steel Furnace Company, 38 West Monroe street, Chicago. They manufacture all kinds, all sizes, double and single, in IC and IX weights and carry them in stock ready for prompt shipment, as well as other Furnace Fittings essential to a complete line.

THE BURGESS SOLDERING FURNACE COMPANY, Columbus, Ohio, advise us that they have just been granted a patent on their Gem Gasoline Soldering Furnace in the Dominion of Canada and will at once proceed to manufacture them in that country.

THE ILLINOIS ROOFING & SUPPLY COMPANY, 203 Lake street, Chicago, reduced their price on Gilbertson's Old Method Roofing Tin. They quote IC, 20 x 28, at \$17.50, and IX, 20 x 28, \$20.50.

A FOURTH OF JULY ADVERTISING DEvice has been distributed by the Nubian Iron Enamel Company of Cragin. Ill. A slip of paper gives some pointers on the quality of Bonnell's Nubiao, part of which is expressed in poetry. The reader is directed to apply a spark to a letter and see the effect. The spark slowly traverses across the paper, burning out the word "Nubian" in bold capitals, and explodes a cap as a climax.

THE TOLEDO MACHINE & TOOL COM-PANY, Toledo, Obio, manufacturers of Presses, Dies and Sheet Metal Tools in general, are running their plant extra time in order to get out as fast as possi-ble some large orders which the firm have on hand. At present this concern are just completing some large sized Presses, among which is a special machine with automatic feed attachment for making links for steel chain belting. The machine will weigh about 10,000 pounds, and will have a capacity for making about 40 links per minute where 1 link is made at a time. It is also so arranged that two links smaller in size can be made at one operation. They are also putting on the market a new power Lock Forming or Edging Machine, for which a number of valuable features are claimed. In addition to these they have recently brought out a new Bail Forming Machine for forming up bails for tin pails, buckets, &c. The new Riveting Machine, especially adapted for the manufacture of tinware, put on the market by this concern some time ago, is reported as giving satisfaction.

Thomas F. Sanford, proprietor of the Queen City Wire Works, 193 Seneca street, Buffalo, N. Y., is show ing many seasonable things in wire goods, such as tree guards, lawn settees and chairs, while be makes a specialty of the manufacture of flat brass and iron Grill Work for offices and elevators. He also supplies all sorts of brass and galvanized iron work, as well as Foundry Sieves and Brushes of every character.

THE CLARK STAMPING COMPANY are a new enterprise located at Rochester, N. Y. They have erected a five-story building at East Rochester and have set up machinery for stamping all kinds of small articles from sheet metal. One of their specialties will be a Back Band Buckle for use on web harness, such as is used in the Southern States. They have a tinning plant in connection with their works for tinning goods of their manufacture.

THE SHEET MILL of the Lalance & Grosjean M(g. Company, Harrisburg, Pa., resumed work in all departments on Monday, after a shut down of some weeks, owing to want of fuel.

#### Reduction in Radiators.

The American Radiator Company, 111 and 113 Lake street, Chicago, have arranged to sell the entire output of Favorite radiators manufactured by the M. Steele Company of Springfield, Ohio. They are listed at 18 cents for steam and 20 cents for water. On radiators manufactured by themselves they announce the following important reductions in price: Two cents a foot on direct steam radiators of the Perfection, Detroit, National and Ideal patterns.
On the National single column, 1 cent; on the Peerless, 2 cents; on the Detroit plain fluted, 1 cent; on the National four-column, Perfection flue and Excel-slor patterns. 2 cents; the new Detroit flue, standard hight, not listed before, is 18 cents. On indirect steam radiation they have reduced the Perfection pin 5 cents per section on standard sizes and 10 cents per section on extra large sizes. On water radiation the following reductions are announced: On Perfection, Detroit ornamental flue, Ideal and Peerless, 3 cents a foot; on National two column, 4 cents a foot; on National four-column, 2 cents a foot;

foot; on Perfection flue, 2 cents a foot; Detroit flue, standard hight, not listed heretofore, is quoted at 19 cents. On Excelsion indirect the reduction is 15 cents per section. On dining room radiation the discount amounts to 163 per cent. On direct indirect radiation the reduction is 4 cents per section. They have changed their terms of payment, so that they are now 3 per cent. discount for cash in ten days, 2 per cent, for cash in 30 days, with regular terms of 60 days. The reasons for mak. ing these reductions are stated by the company to be the lower prices at which they are able to purchase their raw materials and lower rates for labor, so that in making their contracts for the manufacture of their goods for the year they have been able to make economies in the cost of manufacture which they are pleased to share with their customers.

#### CONTENTS.

them American Tim Dieta List

Editorials :

Our American fin Finte List	-3-1
Carbonic Acid Gus	35
Diffusion in Air	35
Ventilation	85
Press Working of Sheet Metals,+VIII. III.	36
New Publications	37
Plumbing and Gas Fitting-	
Gas and Gas Fitting.—II. Illustrated.	34
	6,6-7
The Relation of the Plumber to Ills.	
Client and the Community in Which	
He Lives	38
Large Capacity Water Coolers, Illus.,	39
Cutch Basin and Back Water Trap. Ill.	-,-
	40
Traps and Vents	40
The New Tower Bridge	41
Heating and Plumbing-New Work and	
Contracts	41
Steam and Hot Water-	
The Yale Water Heater. Illustrated	42
Greenhouses on Wheels	42
Heating Notes	42
Electrically Driven Ventilating Fan.	
Illustrated	43
Flashings	43
The Letter Box—	
Staple Driver, lilustrated	44
Hot Water Heating from Steam Boller.	
Illustrated	44
Choked Water Backs	44
Tin Plates—	
Serap	4.5
A Chicago Electric Elevated Railroad	45
Alphabetical List of Brands of Ameri-	
can Tin and Terne Plates	46
List of American Manufacturers of Tin-	
and Terne Plates	47
The Retail Store—	
The Champion Filter. Illustrated	43
An All the Year Round Rack. Ilius	48
Enterprise Grater No. 93. Illus	49
Aluminum Juice Extractors. Illus	49
Erie Aluminum Hollow Ware	49
Stove Trade Notes-	
The New England Stove Trade	50
The Chicago Stove Trade	50
The Thomas White Stove Company	50
German Cooking and Henting Appa-	
ratus	50
	51
The Fuller & Warren Company	51
The Electric Oli Stove Company	52
Odd Plates	52
The Gas Stove Question Abroad	53
Obituary	51
Trade Report—	
The Iron Market	55
Metal Market	55
Chiengo Report	56
Condition of the Hardware Trade	56
Notes on Prices	56
	57
Reduction in Radiators	57
Metal and Miscellaneous Prices	58
Labor Exchange-	
Help Wanted	60
Situations Wanted	60

## Metal and Miscellaneous Prices.

## CHICAGO, JULY 5, 1894.

Tin-	Coke Plates.—Bright.	Sheet Iron-
Straits pigs2146	Elwood.— $lC$ , $14 \times 20$ \$8.00 $lC$ , $20 \times 28$	Black.
Imported Tin Plates— Charcoal Plates.—Bright.	Roofing Plates.	Amer Nos. 10 to 16 № 15 2
Guaranteed Plates command special prices, according to quality.  Per box.	Palm, 1C, 20 x 28	17 to 20# B 2 21 to 24# B 2 25 and 20# B 2 27# B 2 Russia, Planish
Per box   Per	Falm, 1C, 20 x 28.	Russia, Planish Genuine Russia, all num Patent Planished* 5
Oalland and 11X, 10 x 14,	Special, IC, 20 x 28	Craig's Pollshed Sheet St Galvanize
1X, 20 x 28 17.50	Westmoreland .	Juniata or first quality
DX, 12% x 17 6 6.80 DX, 12% x 17 6 8.50	1C, 14 x 20 \$6,00 1C, 20 x 28 12.00	Copper-
IC, 10 x 14@ 6.35 1C, 12 x 12@ 6.35 IC 14 x 20@ 6.35	Elwood: 1C, 20 x 28	Lake Casting Brands
Allaway Grade, IC, 20 x 28 @ 12.70	Kenwood: 1C, 20 x 28\$11.50	Sheet and B
(1X, 20 x 28,@ 15.20 Cohe Plates—Bright.	Furniston: _1C, 20 x 28\$11,00	on cold rolled polished 25¢), 25%.
Per hox.	Juno : 1C, 14 x 20. \$5,75 IC, 20 x 28. 11,50 Illinots, Old Method : \$1,70 C, 20 x 28. \$17.00	Copper Bott Discount on old list, 25 Seamless Brass and C
#toel CokeIO, 10x14.14x20,@\$5.60 IC, 14x20,90 b@ 5.86 IC, 14x20,100b5.50 @ 5.65	Illinots, Old Method:	<ol> <li>Base brice, 17468, Chics.</li> </ol>
90 v 98 11 80 @11.50	1C. 20 x 28. \$12.50	Copper, Bronze and Gil
'X, 10x 14, 14 x 20 @ 7.25 B.▼. Grade. IC, 10x 14, 14x 20.6.75@ 5.86	Jessie: IC, 20 x 28\$12.00	Brazed Brass Tubing
Charcoal Plates.—Terne.	Resourced IC, 14 x 20	(To No. 19 incl
Guaranteed Plates command special prices, according to quality.  Eansel and Dean Grades.—	Scott's Extra Coated, Stamped and	Discount, 40%. Plain, 34 Inch up to 2 Incl
Mansel and Dean Grades.— IC. 14 x 20	Scott's Extra Coated, Stamped and	Plain, 55 inch up to 34 inc Plain, 36 inch up to 56 inc
IC. 14 x 20 \$5.50 20 x 28 11.00 IX. 20 x 28 14.00	Scott's Extra Coated, Stamped and	Plain, 35 inch up to 16 inc Plain, 5-16 inch np to 36 i
Worcester Brand and equal: 12,146 II. (12,146 III. (12,14	Jessic:  IC. 20 x 28	Plain, % inch up to % inc Plain, % inch up to % in Plain, ¼ inch up to % i Plain, ¼ inch up to 8.10 Plain, ¼ inch up to 8.10 Plain, ½ inch up to 3 inch Plain, 2 inch up to 3 inch
1C, 20 x 28. 12.25 @	" 1X, 14 x 20 7.50 " 1C, 20 x 2812.50	Plain, 16 inch up to 8-16 !
20 x 2816.25 @	1X, 20 x 2815.00 Taylor's Old Style, 1C, 14 x 20	Plain, 3 inch and larger.
Tin Boiler Plates.	(Stamped and Resquared)	Plain, smaller than 36 in Bronze and Copper
Per box of Per box of 100 sheets. 112 sheets.	(Stamped and Resquared). 28, 28, 28, 28, 29, 20, 21, 20, 22, 28, 28, 29, 29, 29, 29, 29, 29, 29, 29, 29, 29	Roll and Sheet Brass.
X, 14 x 28\$18.00 \$18.00 XX, 14 x 28 14.50 14.50	(Stamped and Resquared) 8.26	Discount, 40%.
X, 14 x 31 14.50 15.80 XX, 14 x 81 16.50 17.50	Taylor's Roofing, IC, 20 x 28 (Stamped and Resquared)16.50	Slab Spelter- Western Spelter
Per box of 56 sheets.	Columbia, 1C, 14 x 20 (Stamped) 7.25	Sheet Zinc-
X. 14 x 56 29.50 16.50	Maple, IC, 14 x 20 (Stamped) 6.75	600 b casks
XX, 14 x 56 32,50 18.20 X, 14 x 60 81.50 17.65 XX, 14 x 60 85.50 20.90	Willow, IC, 14 x 20 6.50	Loose sheete
XX, 14 x 60 86.50 20.90	Knoxall, IC, 14 x 20	Lead- Beft Pig Lead
American Tin Plates.	Globe, 1C, 14 x 20	Bar
Charcoal Plates.—Bright.	" 1C, 20 x 28	PipeBlock Tin Pipe Sheet
Florence	" 1C, 20 x 28	Sheet
1C, 10 x 14, 12 x 12, 14 x 20. \$6.75 IX, 10 x 14, 12 x 12, 14 x 20. \$6.50	(Redipped), IC, 20 x 2817.00	Solder—
Paima.— IC, 10 x 14, 12 x 12, 14 x 20\$7.00	Old Process   10, 14 x 20	Extra Wiping The prices of the man
IC, 10 x 14, 12 x 12, 14 x 20\$7.00 IX, 10 x 14, 12 x 12, 14 x 20 9.00 Each extra cross \$2.00 and 20 x 28	1C, 20 x 28	of Solder in the market
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Eritiant, 11stude racted, 1C, 14 x 20. 7.25 Ecysis extra. 1C, 14 x 20. 7.00 Almont, 1C, 14 x 20. 6.50 Mint, 1C, 14 x 20. 6.25	H. B. L., Old Style:   IC, 14 x 20.	Cooksen
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1	Sheet Iron-	
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	Common American   Refined   Nos. 10 to 16.   10 to 16.   10 to 20.   10 to 2	
0	17 to 20 # b 2 4-10¢ 8 2-10¢	
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50	Patent Planished * D A, 10 16; B, 1946	
5 5	Craig's Pollshed Sheet Steel	
:5	Galvanized.	
ю і	Juniata or first qualitydis.75@5%	
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50	Lake	
~	Casting Brands	
50	Sheet and Bolt.	
. 1	Discount on old list (except advance on cold rolled polished boiler sizes to	ĺ
10	250, 25%.	
75	Copper Bottoms.	
50	Discount on old list, 25%. Seamless Brass and Copper Tubes.	
ю.	Base price, 17%; Chicago, with extras according to size. Copper, Bronze and Gilding Tube, 3¢ ¥ D additional.	
ا د	Copper, Bronze and Gilding Tube, 3¢ 7	
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00	Discount, 40%.  Plain, § Inch up to § Inch	l
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00	The prices of the many other qualities	
00	The prices of the many other qualities of Solder in the market indicated by private brands vary according to composi	
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Managht-land Disc
Wrought-Iron Pipe-
114 and under, Plain 57/45 114 and under, Galv 50/5 115 and over, Plain 57/45 115 and over, Plain 57/45 115 and over, Galv 57/45 115 and over, Galv 57/45 115 and over, Galv 57/45 115 Casing, Hat Nov 16, 1892 50/5 11892 62/45 11892 67/45 1892 67/45 1892 67/45 1892 67/45 1892 67/45 1892 77/45 1892 77/45 1892 1894 1894 1895 1895 1895 1895 1895 1895 1895 1895
Cast-Iron Soil Pipe— Cast-Iron Soil-Pipe, Tarred; elzes 2 to 0 inches, inclusive
Leader Plpes— Abendrotb's Oslv, Spiral Riveted
Furnace Fittings— Discount from Excelsior Steel Farnace Co.'a list
Steel Roofing-
Perfection\$3,25 square Climax\$3.00 square The Lloyd Spanish Tiling\$1.50 square
Metallic Shingles-
Cushmau's\$1.75 square Merchaut & Co./s Spanish Tiles: Copper, 14 os\$38.00 square Tih\$0.75@\$14,25 square Steel, painted\$9.00 square
Drain Pipe—Tite.  Discount from list
Paints, Olis, &c.—
Deoderized Benzine
Tarred Felt, S Ply, Wroll of 108 sq. 17.08 feet. BL 70 Reofing Pitch, B bbl. of 800 B. \$5.00

### NEW YORK, JULY 6, 1894.

The following quotations are for small lots.

Aluminum I
No. 1 Aluminum (guaranteed over 98\$
pure), in rolling ingots
Small lots P. D. 65¢
100-D lots
No. 1 Aluminum suurranteed to be over
98\$ pure), in ingots for remelting :
Small lots ≥ D, 63¢
100-⊅ lots : № m, 60¢
Ton lots 2 D, 55c
No. 2 grade (guaranteed to be over 948 pure Aluminum), cast in ingots for re-
melting:
Bmall lots % B, 60¢
100.3 lots 105¢
Ton lots ₩ 10, 50¢
Antimony-
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Planished   net   Roll and Sheet   25@30\$     Brass and Copper Tubes   Brazed Brass Tubing   Brown & Sharpe's Gauge the Standard   List April 9, 1894   Plain Round Tube   Per E   \$\ \frac{1}{2} \text{in. up to \$\frac{1}{2} \text{in. so \$\frac{1}{2} \$\frac{1}{
Planished
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Planished   net   Roll and Sheet   25@30\$     Brass and Copper Tubes   Brazed Brass Tubing   Brown & Sharpe's Gauge the Standard   List April 9, 1894   Plain Round Tube   Per E   \$\ \frac{1}{2} \text{in. up to \$\frac{1}{2} \text{in. so \$\frac{1}{2} \$\frac{1}{

1	Conductors-
98≰	Corrugated. Round or Square-
65e	Galvanized, Locked Jeints60%
684	Galvanized, Locked Joints
60¢	Tin60%
ver	Spiral Riveted—
63¢	See also Elbows and Shoes: Eave-
60€	Trough Miters; Strainers, Con-
55¢	ductor.
re-	
60¢	Conductor Strainers—See Strainers, Conductor.
55€	Copper-
50€	Copper— Bottoms, Pits and Flats 19¢ ? B, net Ingot.
0%(#	Lake101/4#
100	Ansonia Grade Arizons10 #
	Ansonia Grade Casting91/4#
	Planishednet
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30% es	Tubes - See Seamless Brass
CB	Eave Troughs-
ird.	Lap or Slip Joint, Galvanized60210% Lap or Slip Joint Terne602
1	Eave-Trough Mitres-
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1	Re-Tinned or Galvanized85%
	Stove-Pipe-
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No. 30.		
Lead-		
	1	
American Pig		

Tin Lined Pipe
Metal, Expanded-
Manufacturers' list No. 3.
Lathing     105       Foncing, Painted Sheets     205       Netting, Painted Sheets     205       Door Mats, Galvanized     265       Window Guards, Paneled     165       Tree Guards, Paneled     165
Mitres, Eave-Trough—Ses Eave-Trough Mitres.
Paints, Olis &c
Lead, Amn. White, In oil
spirits Turpentine:
Putty: In barrels and 14 bbls
Boofing Material, &c.: Aephaltum, Trinidad Refined, ₹ ton
Coal Tar Felt, 3 Ply, # roll 108 sq. ft
Roofing Pitch, ₩ hbl

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, July 14, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK	96-102 Reade Street.
PHILADELP	IIIA220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBURG	H Room 509 Hamilton Building.
CHICAGO	59 Dearborn Street, cor. Randolph.
CINCINNATI	Rooms 22-24 Pickering Building.
ST. LOUIS	Bank of Commerce Building.
CLEVELANI	

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England,

	o Reading MatterPage	
Volume	XL1186	). Q.

The index for *The Metal Worker*, Volume XLI, January-June, 1894, is now ready, and may be obtained on application to David Williams, publisher, 96-102 Reade street, New York; or to 220 South Fourth street, Philadelphia: Room 509 Hamilton Building, Pittsburgh; 59 Dearborn street, Chicago: Rooms 22-24 Pickering Building, Cuncinnati; Bank of Commerce Building, St. Louis: 146 Franklin street, Boston, and 312 The Chyahoga, Cleveland.

#### Roofing and Cornice Instruction.

The announcement made on another page as to the decision of the management of the New York Trade School to inaugurate a day class for instruction in roofing and cornice work will be of interest to many of the readers of The Metal Worker. So far as we know, no such means of education in this particular trade exists in the United States. The opportunity, therefore, should be a welcome one to young men desirous of obtaining a sound training in roofing and cornice work. That the course of instruction will be thorough and efficient is guaranteed by the fact that the New York Association of Master Roofers and Manufacturers in Sheet Metal will co operate with the managers of the trade school and supervise the class.

### Prepayment Gas Meters.

At the last annual meeting of the Incorporated Gas Institute of Great Britain an interesting inaugural address was delivered by the president, John West, on the general question of gas consumption and the means of promoting it. A part of especial interest was that which concerned the prepayment gas meter. Every one is familiar with the variety of penny in the slot machines which flooded the country a few years since. Most of them were of the toy order, but in some directions

there were useful applications of the idea. A year er two ago reference was made to the application of the plan to gas meters, by which means on depositing a coin of a certain denomination in a meter the householder was provided with a given number of cubic feet of gas. It appears in England this apparatus has come into greatest practical use, and it is likely to have still further introduction. As showing the degree the business has reached it is mentioned that the number of prepayment meters that have been made and ordered amounts to nearly 68,000, of which 27,000 have been supplied to the Liverpool & South Metropolitan Gas Company. A table annexed to the address of President West gives many interesting particulars concerning the application of the prepayment gas meter system by some 20 different English companies. In most of the places this style of meter was restricted to houses of low rental, workmen's cottages and the like, though in some others it was used in residences of all classes. It is the plan abroad apparently to supply the ordinary pipe and gas fixtures, such as wall brackets, and in some instances a cook stove or range, &c., the householder contracting to give up the apparatus and fixtures on the demand of the company. The price of gas, according to the reports furnished, varies from about 58 cents to \$1 per 1000 cubic feet, and the prepayment meters are arranged to furnish from 20 to 28 cubic feet for 1 penny (2 cents.) Of the 20 companies reporting 7 furnish 25 cubic feet for that amount. Undoubtedly the introduction of this system has increased the consumption of gas, but it has been used so short a time that accurate statistics are not obtainable. The general average would perhaps be 10,000 cubic feet a year used by each meter. The experience of the English companies in this matter is worth bearing in mind, and with the increasing use of gas stoves the possibilities of the prepayment gas meter will still further extend.

### Rest and Recreation.

The Saturday half holiday is being more generally observed in New York City and Brooklyn this season than during any previous summer. A large proportion of stores and offices close at 1 or 2 o'clock on the last day of the week and many factories and industrial establishments are following the same plan. It has been found to pay. Employers who have had experience of Saturday early closing in the heated term find, as a rule, that they lose nothing by it. They are rather the gainers. Clerks, workmen and employees generally are ready to re-

turn on Morda, morning, refreshed and reinvigorated and far more capable of good work than if they had not had the Saturday attern in for recreation. It gives to many the opportunity of getting away out of the heat of the town to the cooler and fresher atmosphere of the seaside or the country for a full day and a half. This boon to a tired worker during the exhausting weather of a typical New York July and August is incalculable. Early closing on Saturday has been the rule in Eugland and in many parts of the Continent of Europe for many years, with the best results in respect of the physical well-being of their workers. The increase of public holidays in the United States is a healthy sign of the times. There has been too much strain and stress in the working lives of our people hitherto. It is time to take a little more leisure for repairing the waste of tissue and resting the overwrought hand and brain. It pays

### A Little Object Lesson.

The report just made public of the result of the attempt to operate a rolling mill at Hubbard, Ohio, on the cooperative plan is extremely interesting. After paying up all outstanding indebtedness there will be a surplus of about 25 per cent, to distribute to the stockholders out of the 50 per cent, of the wages that have been retained by the managers to create a capital. This is equivalent to a reduction of 25 per cent, in wages for the time that the mill was in operation. In other words, in order to get out even the company could only afford to pay 75 per cent. of the wage scale. This should be a practical lesson to rolling mill hands of the difficulties which now beset employers. If men who are working absolutely in their own interest, and are therefore watching every corner and practicing the utmost economy in fuel consumption, care of furnaces, breakage of rolls. &c., can not show better results, how can they expect full wages to be paid by manufacturers whose workmen have no financial interest whatever in the plant? By what hocus pocus can the average mill make a profit when a mill run by first-class men, as this one undoubtedly was, shows such a loss?

An alteration which will be made in the arrangements of the New York Trade School for the season 1894-1895 is that the length of the course for the day trade classes will be four instead of three months, as heretofore. The extra month is introduced in order to give the necessary time for instruction in elementary plan drawing in connection with each of the classes taught. This is a new and valuable departure in the work of the school. The ability to make and comprehend a plan of work is an absolute necessity to a first-class workman in these days.

# THE LETTER BOX.

#### Loss in Pickling.

From W. W. T., Cleveland, Ohio. -We recently had some discussion with regard to the percentage of loss in the pickling of steel. If you care to do so we should be glad to have you make inquiry for information as to the average loss from this operation.

Note. - This inquiry, which comes from a large manufacturer of sheet metal goods, involves an interesting question, and we should be glad to have those of our readers who have had experience in the matter furnish us some particulars. More especially the tin plate manufacturers and makers of galvanized iron could furnish reliable statistics if they have kept records, and we trust some of them will write us for the benefit of our correspondent. As of interest in this connection we would present the following figures taken from a recent article on the subject of galvanizing. The figures refer to four different gauges of black iron and the weight of the black iron and of the iron after pickling are given, from which the loss may be deduced :

#### The Electrolytic Decomposition of Steel Plates.

From A. H. S., Philadelphia, Pa.-In reference to the well known rapid decomposition of steel tin plates and galvanized steel plates the thought has occurred to the writer that the trouble may be caused by electrolytic action. It is well known that steel is peculiarly susceptible to electrical influence, and it is just as well known that there is a constant greater or lesser action of electric influence in all substances sub ject to clectric action. The question arises whether electrical influence may not have the same effect on steel plates imperfectly costed with either zinc or terne coating that it has on the zinc pole of a battery when placed in juxtaposition to a pole of carbon, the effect of decomposition. As many know from observation of an ordinary tele phone battery, the process of decomposition of the zinc pole of the battery is always more rapid while the battery is working--that is, while the telephone is operating-so that it follows that the precess of decomposition of the zinc pole is the result of electrolytic action. May it not be a fact that the rapid deterioration of galvanized steel sheets in particular when used for such work as cornices, conductor pipes, &c., coming in contact with the sulphurous acid known to exist in quantity in the stmosphere of those portions of the country where coal is largely used as fuel, is caused by electrolytic action, generated by the acid in the atmosphere through the medium of the zinc and carbon of which the plates are largely composed, I

creating as it were an electric current or effect of sufficient force to accelerate the process of decomposition of the steel in the plates by electrolysis? fact, it may not be necessary that the steel plates shall be costed with either zinc, tin or terne in order that the action of electrolysis may take place. Steel itself, and particularly the soft annealed steel of which all plates must necessarily be made, may and probably does have that electrical quality within it which, through the influences I have recited, leads to its destruction as a p'ate and its resolution into an en tirely different element. When it is asserted that iron pipes under the surfaces of streets are affected by electrolysis and disintregated through the action of the underground wires used for trolley cars, such action affecting the pipes, although apparently remote from the electrical influence, one can readily infer that a sufficiently active electrolytic action may exist within the electrical field of fragile steel plates imperfectly coated with either tin or terne coating, and galvanized steel with the coating pecked off here and there through the process of working it into the shapes in which it is used, to cause all the evils now known to exist and which did not exist when iron was used for those purposes before it was supplanted by the apparently cheaper steel. If my idea is correct it follows that the present method of constructing tremendously expensive armored ships of steel and subjecting them to the action of the muriatic acid knowu to exist in sea water puts them in presence of an enemy more formidable than all the navies of the world.

Note. - Our readers will undoubtedly be interested in these views of our correspondent, but we fear he has not struck the correct solution of the difficulty. The electrical action that takes place when iron and zinc are together in the presence of moisture results in the destruction of the zinc and not of the iron. In fact the presence of zinc in combination with iron is a means of protecting the latter mctal. It is used on ships' bottoms to preserve the iron plates, and experiments have also been carried on abroad, in which a bridge was connected with a zinc plate sunk in the damp ground, the result being that the plate was corroded and the bridge preserved. Our correspondent is also probably aware of the method of protecting tinware by means of small pieces of zinc soldered into the utensil, so we fear his explanation is not applicable to the present trouble. There is one bearing of it, however, that should be noted: The electrical current developed in the presence of the two metals will result in the more rapid destruction of the zinc than if it were not used in connection with iron. In this way the black sheet is more quickly stripped of merged steam condenser. In passing

its protecting metal and corrosion is given thereby a better chance to progress. Or again, if we consider the possibility of electrical action within the steel itself, so to speak, between the carbon and iron, leaving the zinc coating out of consideration, there is still no reason to believe it, if it exists at all, to be an adequate explanation. If it were so, cast iron would corrode more readily than wrought iron, for in the former the carbon is separated to some extent in the graphitic form and the analogy to an electrical battery is more close. As a matter of fact, however, cast iron resists corrosion far better than the purer metal and makes much more enduring water pipes and water receptacles. As of general interest in this connection it may be remarked that quite recently new theories have been put forth concerning the rusting of iron, the old explanation of the manner of the oxygen combining with the iron not serving to explain some of the phenomens of rusting.

#### Choked Water Backs.

From D. H. B., Phanix, Ari.—Having read the articles on "Choked Water Backs" in The Metal Worker of May 19 and June 2, would say that one of my "steady jobs" here is putting in new water backs. The water here is full of alksli, so much so that water standing in an open vessel, co'd, will leave a noticeable deposit; and when heated deposits very rap'dly and in large quantities a substance that is almost impervious to liquids of any kind. I had the same idea as is advanced in your answer, Msy 9, "that a large pipe should be used in making coil water backs," but found after a fair trial that inch pipe is the best size to use, and that only one coil should be used, as it is not so liable to fill up with sediment. I have found that it is an absolute necessity to have the cold water pipe to the water back as straight as it is possible to get it, and when it is, that the water back will last from two to six months longer. The only remedy that I know of to clean a choked water back is to put in a new one. I put in one; yesterday to replace one that was burned entirely through, the city pressure (of 40 pounds) being on all the time and no complaints to speak of, except from the cook, who said he could "get no hot water" and that the fire box of the range was "wet" every morning. The two burned ends, being solid with deposit, kept it from leaking.

I send by express a small piece of the deposit taken from an old pipe that had been used as the overflow from a con-denser at the ice works here. The water was first used in cooling an elevated, hot ammonia condenser; from there it ran through a large tank that is used as a cooler, and then over the subover the two condensers and through the tank the greater part of the sediment was left, but enough passed over to give you an idea of how it acts when cooling and of the character of the deposit. In steam boilers a compound serves to keep the scale soft; but it (the scale) has to be scraped from the tlues about once in two weeks in order to do good work.

Note.—The sample of deposit referred to looks as if it had come from a battered 3-inch tin or sheet iron pipe from its irregular shape and has an irregular hole through the center that is about equivalent to a 1½-inch pipe. The material seems like a dirty, coarse marble, and on what we suppose was the bottom side it is ¾ inch thick, the opposite

furnace was adjusted correctly a naked hand could be laid on the smoke pipe and held there without any inconvenience. How much upward current would be obtained by his method? Again, according to the system "T. H. H" has adopted, the vent should be nearly equal to the inflow, but the outlet amounts to about one-eighth of the inflow. The vent stack should support a velocity of not less than 600 feet per minute with a proper adjustment, but as planned one-third of it could not be maintained. He remarks that if "W. S. G" had taken the pains to read the carpenter's specifications he would find so and so. When did it become obligatory for the heating man to read the carpenter's, the plumber's and the mason's specifications to find out what he was expected to bid on? His remarks on smoke

wrapping, his cellar would overheat and his furnace would not last onethird of its natural life. I think a careful study of the iuclesed diagram will bear me out in the judgment of any first class heating man.

Note.—Sufficient space has been devoted to the consideration of this heating plant for all to have learned something from it, and we think our readers will be satisfied to let "Casar's" letter be the last one on the subject. We have received a letter from "W. S. G." in which he states his desire was not to offer offense, but rather to give opportunity for furnacemen to learn, and his purpose has been well served.

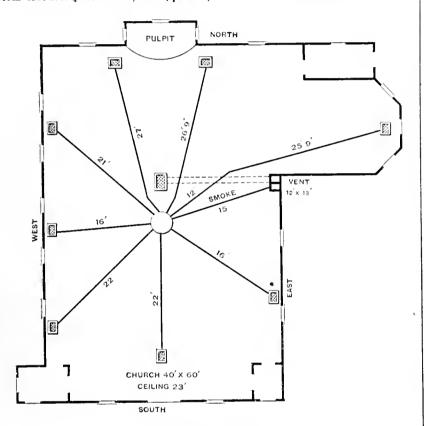
## Wants Statistics on Brick Set Furnaces.

From GEO. M. BARR, Allegheny, Pa. Commenting on "Caesar's" letter in The Metal Worker of June 23 regarding brick set furnaces, would say that while we have never learned the per cent. of decrease in use of same, we know there has been a considerable falling off in this locality, as well as the territory covered by salesmen south and west of here. There are several reasons for this. The portable furnace is chesper. It requires less room. When cased as our furnaces less room. When cased as our furnaces are there is less radiation of heat in the cellar. The portable turnace is much easier erected, and at less expense to contractor. It is also cleaner. Iu case of making repairs to castings the work can be done in half the time and with less expense than it could be done in the brick set furnace, and mason's services are not required. It has occa-sionally been said to us that metal casings are easily damaged and banged up.
We have not found this the case, and we have our apparatus in schools, churches, stores, asylums and dwellings. Of course the metal casings will not stand the onslaughts of an axe or sledge hammer in the hands of a dctermined, able bodied man, and up to date we haven't seen a brick casing that would either.

Notwithstanding every effort on the part of the employers to arrive at a settlement of the dispute with their operatives, the prolonged Trenton pottery strike still continues, with little present prospect of an adjustment. Conference committees of manufacturing and operative potters met last week and had practically agreed to compromise on a reduction of 15 per cent. in wages from the old list, when the operatives suddenly withdrew their authority to the committee to settle the atrike, restlirming their claim to the old rate of wages.

Reports come from Parls to the effect that the liquidators of the Panama Canal Company have signed an agreement with a new company, capitalized at \$300,000,000, who undertake to complete the canal.

Large Irrigation works costing \$2,000,000 and Irrigating 400,000 acres of land are to be built in the Rio Verde Valley of Arlzona. The work is to be completed in 18 months. It includes about 110 miles of canal, and a reservoir of immense capacity.



Wants a Better System.

side being only §. One end evidently has been broken, as it shows an irregular fracture; the other has been sawed off, showing that the material is quite hard. The suggestion of "P." in *The Metal Worker* June 23 would prevent the trouble in the water back, but that there would be a deposit at some other point is quite probable where there is so much alksli in the water.

### Wants a Better System.

From C.ESAR, Louisville, Ky.—Having read remarks in The Metal Worker, June 23, by "T. H. H." on article by "W. S. G.," May 12, I am still constrained to say the former is very much in error in his ideas of planning a hot air heating job. I find by measurement that the vent flue is only 12 x 18 inches, which "T. H. H." states is warmed by the smoke flue. Has he ever tested a flue of this kind to see what degree of heat would be acquired from the smoke flue? Has he ever tested the velocity of the air in a job of this kind? If the

stack shows that his experience is limited in regard to this one point. It has been granted by experienced men that a stack which has its top below the comb of the roof is objectionable, and prevents a man who understands his business from guaranteeing a job completely. The only safe way is to insist that the chimney should reach a few inches above the comb of the roof. He speaks of having some experience with an undivided column of air, and speaks of some people roasting and some freezing. He should be very certain of the quality of the work that his experience came by before he undertakes to criticise other people's work. I say, and can prove it by actual experience, that if the job is adjusted properly the person next to the register is no warmer than the one 20 feet away. And also that one cannot feel any current until reaching the perpendicular line of opening in the register. This statement has been substantiated too often to admit of an argument. Again, his adjustment of the job cannot show less than 188 feet of cellar pipe, and by this plan, notwithstanding his asbestos

## Press Working of Sheet Metals.—IX.

BY CREBLIN SMITH.

coining Processes.

The process of coining, as has been indicated earlier in this article, is analogous to drop forging; or pumping melted metal into a type mold; or squeezing a piece of soap or clay in the palm of one's hand; or molding a pat of butter. In it we see illustrated the principle of the flow of tolida even more vividly than in the drawing

process

In Fig. 298 is shown, in vertical axial section, a pair of ordinary drop press dies, arranged for drop forging a small hand wheel, as shown in axial section in Fig. 300 and in top view in Fig. 30t. It is possible to do such work as this cold, where copper, lead and other soft metals are used. In practice such dies are more often cmployed for iron or steel, heated almost to a white heat. In Fig. 299 is shown a blank from which the wheel is made, which may be of any appropriate form. In this case it is simply a round punching, made from that bar iron. The process is, of course, simply one of molding, the die L being rigidly se cured to the bed of the press and the die U to the ram. The latter descends one U to the ram. The latter descends from a considerable hight, and with a force for greater than is usually em-ployed in sheet metal work. A disproyed in sheet metal work. A distinguishing characteristic of such products is the beautifully irregular little fin, surrounding the work like a halo at a a. It is true this fin might not occur, but it generally does. Its absence is attainable only by the blank being placed exactly in the right position, remaining there during the blow, and containing exactly the right amount of metal. These fins, as before intimated, are always present in some degree, but are trimmed off afterward in what is called a trimming press, in which are mounted dies that are, of course, nothing but ordinary cutting dies. Obviously, by this process such articles only can be made as will deliver freely from the dies, by reason of having considerable taper and no high vertical

walls.

The process of coining, as employed for manufacturing medals and metallic money, embodies the same general principles as drop forging work, but is carried out very differently in detail. Furthermore, the metals used are generally worked cold, and there is much more uniformity in the general design of the product than in the drop forging art, whose products embrace almost every concelvable kind of article adapted to

the processes employed.

In Fig. 302 are shown, in vertical axtal aection, a pair of coining dies, U and L, together with their collar C, such as are used in the mints of all the principal civilized nations of the earth for stamping the coins of the realm, from so-called "planchets" or milled blanks, as shown in axial section in Fig. 306. These dies are shown in open position, ready for the planchet to be fed into them by sliding it over the face of the collar and allowing it to drop into the same and over the lower die. In Fig. 303 the same dies are shown in closed position, when giving pressure to the embryo com. In Fig. 304 they are shown when the upper die has risen out of the way and when the lower die has risen in its collar to

cject the coin; or, as is often the case with an alternative device, when the collar has descended for the same purpose, the lower die remaining stationary.

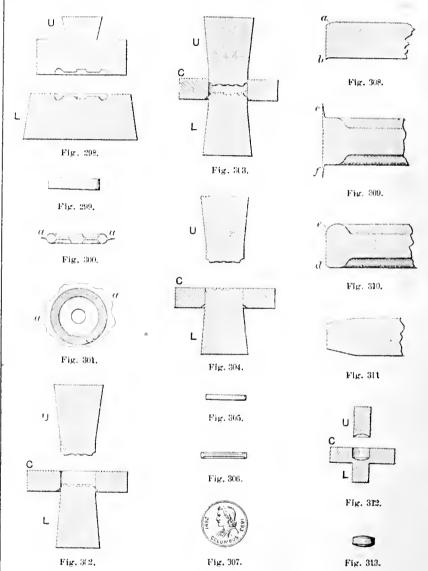
ary.

In Fig. 305 is shown, in edge view, a blank as punched by ordinary round cutting dies from a strlp of metal of the proper thickness; and in Fig. 308 an enlarged partial section of the same appears. At a b are shown the characteristic rounding on one side and burring on the other, incident to all punching operations. These, however, do not signify, as the milling machine kindly

takes care of them.

cogs, running parallel with the sxis of the coin. These are formed by fluting the internal surface of the collar c, which, by the way, is made very slightly conical, to facilitate easy deliverance.

It is evident that in this kind of work, as well as in drop forging, there is a tendency to produce unwelcome fins, should there be a surplus of metal to the slightest degree. These fins of course tend to form as at e and f, Fig. 309, in the only place available for the metal to escape, which is in the joints between the dies and collar. Manifestly they must be avolded, and great



PRESS WORKING OF SHEET METALS.

In Fig. 306 is shown in section as before mentioned and in Fig. 310 in partial section a planchet which has been made from a blank by the "milling process" so called. This consists of rolling the edges in a special machine, the radial compression thus obtained upsetting or thickening them into the form shown, while at the same time the corners are rolled down to a rounded shape, preferably more like c than d. In Fig. 307 is shown the face of a finished medal which has received upon both aides at once reversed impressions from the respective upper and lower dies employed.

In some cases a coin or medal is reeded or fluted upon the edges, as is the case with our American silver and gold coins, the so called reeding consisting of a number of fine teeth, or

care is therefore taken, for this as well as for financial reasons, that the weight and consequently the approximate mass of metal in all the planchets shall be uniform, at least to within a very small limit of error. Even with this accuracy of bulk thers would sometimes be minute fins, especially as the dies cannot be depended upon to always come exactly the right distance apart, were an attempt made to produce perfectly sharp corners at c and d. For this reason, as well as for convenience and beauty in the coin, these corners are rounded, an attempt being made to leave them of nearly as great a radius of curvature as was given to them by the milling process. This, of course, can only be done by not pressing the planchet hard enough in the middle to

make the edge flow out violently and force itself into the Interstices of the mold, as in Fig. 309. Fortunately, with the metals ordinarily used, this can be done successfully, and yet a sufficiently deep, sharp, cameo impression can be obtained upon each face of the coin. The changing conditions above referred to, however-viz, some slight difference in bulk, a non-uniform descent of the upper die owing to springiness in the machinery, and certain trifling variations in the density of the metal—cause a different smount of edgeward flow. Consequently, upon some coins, and upon one face more than the other of some certain coin, and perhaps at certain places around the edge of a given coin face, the metal will flow outwardly scarcely at all, thus leaving a considerably rounded corner at c. At other times and places the circumstances mentioned will eause a greater flow edgeward, with the result of a much sharper corner, as shown at d. The constant effort of the coiner, how-ever, is to prevent d from ever becoming entirely sharp. A easual examination of any new coin will show, without a magnifying glass, these inaccuracies as to the relative sharpness of corners, even in different places upon the same coin.

Within a short time past, and since the production of aluminum has been so wonderfully cheapened, it has become fashionable to coin this metal into medals of all imaginable designs and degrees of beauty and ugliness. Some of the makers of these have attempted an excessively deep cameo effect. The metal, however, has proved itself too prone to flow wheresoever it listeth, with the practical result of a finned edge like Fig. 309, the metal near the periphery not proving itself to be a sufficiently strong boop to hold in against the radial flow started by the central expanding forces. The makers. who attempted but a small production, dressed the obnoxious fins off in a lathe, which, of course, was a slow and wasteful process. In any case, these difficulties were brought to the attention of the writer, who suggested the use of a planchet made thinner around its edge, instead of thicker, and also considerably tapered off, as in Fig. 311. Such a shape is easily made in a pair of special dies after cutting the blank, or in the sheet before cutting the same by compressing dies set in a gang with the cutting die, so as to produce the blanks at one operation.

This form of planchet proved successful, as the surplus flow from the center was, by the time the impressions were made, none too great to properly fill the edges of the mold, by which term I refer to the group formed by the closed dies and collar, closed as in Fig.

303.

In Fig. 312 is shown a pair of dies and a collar, such as is used for making the ordinary medicinal tablets, or disk shaped pills, shown in Fig. 313. These work precisely upon the same principle as do the dies in a coining press, and are sometimes made of other shapes than round, such as square, triangular, &c. The material in this case is usually a dry powder which adheres by compression. Any fins that may occur are so fragile as to rub off in handling, and are not noticed.

Soap presses also work upon precisely the same principles above described, and all the cake soap in common use is simply the product of coining the crude pieces of irregular shape, which are placed in the lower die by hand.

The same process is sometimes used

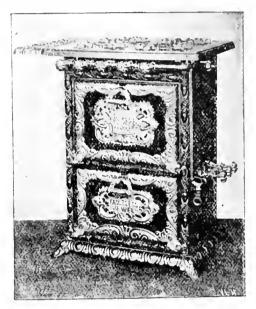
for compressing cakes of salt and other materials, usually in the form of reet angular bricks. The ordinary brick press of commerce is another illustration of a coining apparatus, the diea or molds being usually set in gangs of several together in a row. That formef brick press which uses dry powdered clay is a most as elaborately built as is a smaller coining press, but is, of course, relatively immense in its proportions and strength, as very great pressure is required to preperly compact the clay.

Regarding the pressure required for ordinary coining, but few data are available. The force applied to any given coin, however, of course considerably exceeds the ultimate compressive attempth of that particular piece of metal, otherwise it would not tlow.

The speed employed in such operations should not be too fast to obtain the fine impressions usually required. It is probable that the ordinary speed of a drop press ram might in some cases give the metal scarcely time enough to flow, but there is no difficulty in practically running such machines at a

enables the user to change the stove for different qualities of gas or for radical changes in pressure by lessening or increasing the air supply. A simmering burner for keeping things warm and a giant burner for extra power to boil the contents of a kettle quickly are provided on each stove, operated by valves at the side. The oven or brolling burner is double, extending the entire length of the oven and spreading the heat uniformly. The pilot light is provided with an air mixer the same as the reguar burners. It is said that the arms bring the light in direct contact with each burner so that they light instantaneously when the gas is turned on. The broiling rack is separate from the drip pan so that the latter may be placed at a suflicient distance from the burners to prevent the contents of the pan from taking fire.

The body of the range is made of cold rolled steel, japanned on the inside as well as the outside, a point to which the manufacturers direct special attention, the claim being made that such treatment doubles the life of the range.



The Faultiess Jewel Gas Range.

speed of from 100 to 200 strokes per minute, 120 being the usual standard for small coins in the United States mints, and 100 for the larger ones.

The presses used for medals, of which but small quantities are usually required, are generally hand fed, and are cither of the serew or toggle driven type. For regular coinage in Government mints, and in some cases in the factories of medal and badge makers, automatic presses are used in which the planchets are simply piled by hand into a long vertical tube, the machine doing the rest upon its own responsibility.

#### The Faultless Jewel Gas Range.

In order to keep up with the times in the way of modern appliances connected with the stove industry, the Detroit Stove Works of Detroit, Mich., have engaged in the manufacture of gas rauges and have just placed upon the market one size of what is known as the Faultless Jewel. A general view showing the ornamentation of the stove is presented herewith. The range has four burners in the top surface, these being of a special sawed pattern carefully adjusted. Every second slot is sawed but half way, thus bringing an equal distance between the flames. An adjustable air mixer on each burner

by preventing the moisture formed fromrusting through the body. Asbestos linings cover the entire steel body on the inside, thus retaining the heat within the range and economizing the gas. The castings are of smooth finish, artistically decorated, and, it is said, of great strength. The range is raised great strength. from the floor, thus providing for ample admission of air to the broiling chamber, while at the same time preventing the burning of the floor. The oven and broller doors are both poised, and when dropped form convenient shelves. The baking and broiling ovens are full flued, the flue plates being portable, so that they can be removed with ease when required. The bottom of the oven is protected from the direct heat of the burners by a heavy cast plate. A water heater attachment having an eight return coil pipe can be added at any time, taking the place of the top shelf. A double burner is provided, which, it is claimed, will heat water rapidly. The Faultless Jewel has a bake oven, 18 x 16 x 12 inches; brolling oven, 18 x 16 x 11 inches, while the body of the range measures 22 x 17 inches. The area of the top plate is 22 x 26 inches. The width of the top shelf is 8 inches, and the width of the top of the water heater 101 inches. The range atands. 36 inches in hight.

# THE TIN SHOP.

Patterns for Cold Air Box.

From A. L. M., New York City.—I have a peculiar elbow to construct in a cold air box which has puzzled me and some of my friends interested in pattern cutting, so I have concluded to ask The Metal Worker to solve the problem for me. The conditions are as follows: The box is rectangular 12 x 24 inches and proceeds horizontally from the bottom of the furnace 12 inches, thence it must reach a point 6 feet high, 4 feet further away from the furnace and at the same time have an offset of 3 feet. I inclose a rough diagram showing the position of the furnace and offset.

Answer. - Believing that the solution of this problem will be of general interest to those of our readers who are familiar with the subject of pattern cutting, we have taken some pains to consider the problem in its various phases and present herewith two solutions of it. Iu Fig. 1 the plan and side elevations embody the essential conditions of our correspondent's sketch, but we have substituted letters to represent the various dimensions instead of the figures given. Thus, a and b are used to represent the dimensions of the box instead of 12 and 24 inches, while c, dand e represent respectively the 6 feet, 4 feet and 3 feet mentioned cr, in other words, the hight, slant and offset of the oblique portion. The drawings are made to a uniform scale of § inch to the foot and corresponding points in the different views are lettered the same so as to facilitate making references from one view to the other.

We wish to call attention primarily to the fact that the solution of this problem is more a matter of drawing than of pattern cutting, as nothing can be more simple than the cutting of a miter between two pieces of rectangular pipc when the required angle between them is known. All of which points to the necessity of a knowledge of the principlea of geometric drawing, a subject upon which very little has been written for the benefit of the pattern cutter. That branch of drawing which most directly concerns him is known in the books as "Orthographic projection," the principles of which are quite simple and casily understood. These principles if carefully studied will render him much valuable assistance, of which the present instance is ample proof.

As it is necessary that drawings of some kind be made before the pattern can be developed, we will proceed to construct them upon the data given. First draw a plan and elevation of as much of the furnace as is necessary to show its connection with the cold air

box, placing each part of the plan directly under its corresponding part in the elevation, so that as soon as any new point is determined in either of the views its position can be located in the other by means of a perpendicular line dropped from one view to the other. Upon the plau set off the width of the box b and draw parallel lines from the side of the furnace body to the right indefinitely, and upon the elevation set off its blght, a, from the floor line up, and draw A Z. A vertical line from the point X of the plan will give the point Z upon the elevation, or, in other words, show how far the curve of the furnace body cuts into the top and bottom surfaces of the cold air box. Next, upon the elevation locate the point A 12 inches from the side of the body according to specification and find its position in the plan by means of a vertical line. as shown. From the point A in both views lines must be drawn to represent the angle or deflection of the pipe as it would appear in those views. Thus the elevation would show the slant, which is determined by the two dimensions c Therefore from the point A of the elevation erect a perpendicular line equal to the required hight c, from the top of which draw a horizontal line to the right of a length equal to the amount of slant d, thus locating the point E, which connect by a straight line with A. Then will A E represent the angle of the oblique portion of the pipe as it appears in the elevation But according to the requirements the pipe is also to have an offset a distance equal to e-that is, the point E of the elevation is nearer the observer than the point A. Therefore from A' of the plan draw a line forward the amount of the offset, from the end of which draw a line to the right, in length equal to d. or in other words till it comes directly under the point E of the elevation, thus locating that point in the plan, and draw A' E', which will show the apparent angle in the plan.

The depth and width of the oblique portion of the box will next demand attention. At right angles to the line A E of the elevation set off the depth of the box a and draw a line to represent the lower near corner of the box, which continue downward until it cuts the floor line, as shown at D; then draw A D, which represents the miter cut for the side of the box. At right angles to A' E' of the plan set off the width b, as shown and draw a line parallel to A' E' interaccting the line from X at B', as shown, and draw A' B', which gives the plan of the miter cut across the top

of the box. As the point D of the elevation is in the same vertical plane as A, it may now be dropped into the plan, intersecting with the line showing the front side of the box in that view, as shown at D'; and the point B' of the plan, being on a level with A', may be projected into the elevation, where it would intersect with the line showing the top of the box at B. A line drawn from D' of the plan parallel to A' E' (shown dotted) will then show the position of the lower near angle of the inclined portion of the box, and a line from B of the elevation parallel to A E will show the position in that view of the further top corner of the box

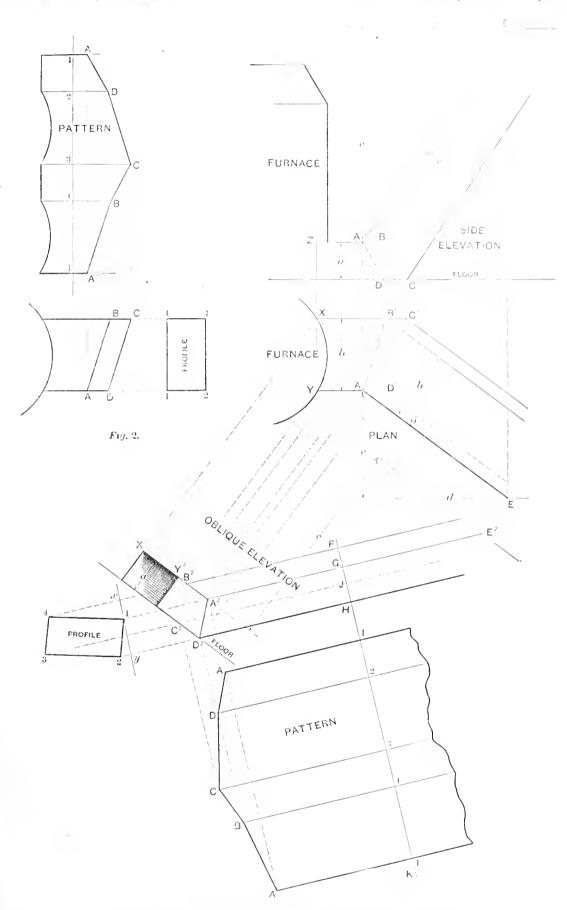
The position in the two views of the remaining angle of the inclined portion of the box may be ascertained in several ways: The width b may be set off from D' of the plan and a line drawn which will intersect with X B' continued, as shown at C'; thence it may be projected into the elevation at C, as shown; or the width a may be set off from B of the elevation, thus locating the line which intersects with the floor at C, which point may be dropped into the plan, thus locating the point C'; or, again, BC may be drawn parallel to A D, or D' C' may be drawn parallel to A' B', all producing the same result.

Those familiar with what in cornice work are called gable miters will no doubt at this stage notice the similarity between the relative position of the two portions of the air box, and the relative position between the two arms of a gable miter, in which the inclined arm meets the level arm at an octagon angic. Every experienced pattern cutter knows that in such a case, if the normal profile is adhered to in the level arm, the profile of the gable mold must be changed or "raked" before a perfect miter joint can be obtained. What is true in the case of the gable miter is equally true in the case of the furnace pipe-a correct profile or cross section of the box must be developed in order that a correct stretchout may be obtained for use in cutting the miter of the inclined arm of the pipe. As neither the plan nor the elevation, which we have taken pains to obtain correctly, gives the true length of the inclined plece—that is, the true distance from A to E-it will be necessary to obtain atill another elevation, in which such distance is correctly shown. As A' E' of the plan gives the horizontal distance between the points A and E, and c represents the vertical distance between them, if we construct

a right angled triangle with A' E' as a 1 base and c as the perpendicular, the

line A E of the plan, as follows: Parallel to A' E' at any convenient dis-

pipe. Above the line X: A:, at a hight equal to c, draw still another line, upon hypotenuse will then give us the de- | tance away draw a line to represent | which the point E is subsequently to be



Patterns for Cold Air Box.-Fig. 1.-Plan, Elevations and Patterns.

sired measurement. To accomplish | this according to prescribed drawing

which at a distance equal to a draw points of the plan, at right angles to methods, we will proceed to project an another parallel line, X<sup>2</sup> A<sup>2</sup>, representing by A' E', intersecting each with its coroblique elevation at right angles to the hight of the horizontal arm of the responding line of the new elevation,

the level of the floor, as shown; above | found. Now drop lines from all the

thus locating each point of the miter in that 'view. As points B' and C' are upon the 'loor, their position will be found at D' and C'. Likewise lines from A and B will locate those points in the upper surface of the horizontal pipe, as shown at A' and B', where they are also shown to be in the side elevation. A line dropped from E' will

by other parts are always shown dotted. Lines from X and Y locate those points in the new elevation, and show that while we have obtained a correct elevation of the inclined arm of the pipe we have also obtained an oblique view of the horizontal portion, the space between  $X^2$  and  $Y^2$  showing the open end to fix against the furnace body.

to them as a base from which to measure distances from front to back.

Assuming its crossing with the line from G (point 1) to represent the near angle of the pipe, set off from x on the line from F the horizontal breadth of the pipe b, thus locating point 4, which corresponds to the point F in the elevation. In like manner on the line

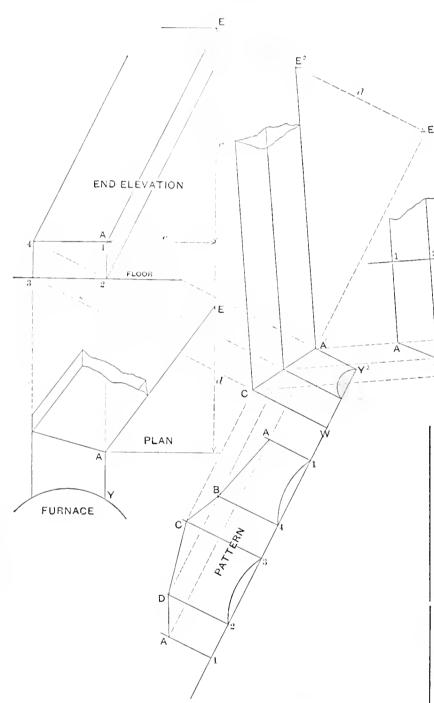


Fig. 3.—Pattern Derived by Second Method.

also locate that point at its proper hight, as shown at E<sup>2</sup>. A line connecting A<sup>2</sup> and E<sup>2</sup> wilt then be the hypotenuse above alluded to, and be the correct length sought. As all edges or corners, of the pipe are necessarily parallel, lines drawn from B<sup>2</sup>, C<sup>2</sup> and D<sup>2</sup> parallel to A<sup>2</sup> B<sup>2</sup> will complete this part of the elevation as far as necessary. In these, as in all geometrical drawings, lines showing parts concealed from view

Having now obtained a correct elevation, the next step is to obtain a correct profile upon any line, as F H, drawn at right angles across the pipe, which may be accomplished in the following manner: From each point upon the line of the section F, G, J and H, project lines parallel with the direction of the pipe to a convenient point outside the elevation, as shown at the left, across which draw a line, xy, at right angles

from H set off from y the distance o of the elevation, locating the point 2, which corresponds to point H of elevation, and draw the lines 1, 4 and 1, 2. The distance of point 3 from line x y is equal to distance b plus the distance o, or in other words draw the line 2, 3 parallel to 1, 4, and the line 4, 3 parallel to 1, 2, thus locating the point 3.

PATTERN

Having now a profile and a correct elevation of the miter, nothing remains but to lay off a stretchout, as shown, upon the line H K and drop the points in the usual manner from the profile to the miter line A<sup>2</sup> B<sup>2</sup> C<sup>3</sup> D<sup>2</sup>, thence into the measuring linea of the stretchout, all as clearly shown in the drawing.

As the plan shows all the dimensions of the horizontal arm of the pipe, the pattern for that can be developed in the usual manner. To avoid confusion a duplicate of that part of the plan has been transferred to Fig 2, where a stretchout of the normal profile is laid off at right angles to the lines of the pipe, into which the points are dropped from the miter line A B C D. In the normal profile of course the distances 1, 4 and 2, 3 are equal to b and the distances 1, 2 and 4, 3 to a.

It may be here remarked that the raking of the profile necessarily changes the dimensions of the inclined arm of the pipe, but as the change is very alight and only done to make a miter,

it can acarcely be considered as a violation of the original specifications.

But, the person of inquiring mind asks, is there no way of producing a miter without a change of profile, just as a carpenter would saw off the ends of two square sticks of timber of the same action and produce a perfect miter at an oblique angle? We reply there is, but the method of doing it is not so apparent as the one just described. To accomplish this a drawing or view must be obtained, in which the surface of the paper represents a plane common to both arms of the pipe. As three points determine the position of a plane, it will be seen at once that such a plane passes through the points Z, A and E. The best means of obtaining this view is shown in Fig. 3, in which the plan shown in Fig. 1 has been reproduced, but turned around in such a manner as to facilitate the projection from it of an end elevation, all of which is clearly shown in the drawing. This view shows the offset e and the rise c of the oblique portion of the pipe. The new view, which will give the required conditions, is obtained by looking at the pipe in a direction at right angles to A E of the end elevation, and is obtained as follows: Parallei to A E at any con venient distance away draw A' E', which make equal to A E by means of the lines drawn at right angles to A E, as shown. Upon the line E' E set off from E' the slant d as given in the side elevation and plan, Fig. 1, locating the point E2, and draw the line E<sup>2</sup> A'. From all points of the profile or end view of the horiz intal pipe, 1, 2, 3 and 4, project lines also at right angles to AE, continuing them across the line A' E', and make A' Y' equal to A Y of the plan. Then A' Y2 will be the length of the horizontal arm in the new view and A' E2 will be the length of the inclined arm, both lying in the same plane, and the angle E2 A' Y2 will be the angle at which the two arms meet. Under the above conditions, then, a line which bisects that angle, as A' C, will be the miter line between the two arms. As the two arms of the miter are symmetrical, the view can be completed, if desired, by drawing lines toward E2 from the points of intersection with the lines from the end view with the miter line A' C. As 1, 2, 3, 4 is the profile from which the short arm was projected in the new view, a stretchout may now be taken from it and laid off on any line at right angles to C W and the points dropped in the usual manner, all as shown. If desired, the stretchout may also be laid off at right angles to the inclined arm and the pattern for this piece thus developed from the same miter line, although the miter cut A BCDA is the same in both pieces, one simply being the reverse of the other.

JAMES TUCKER & SONS were awarded the contract for the plumbing in the new High School at Somerville, Mass., at a cost of \$3170.

## HEATING R PLUMBING.

### NEW WORK AND CONTRACTS.

Tue town of Newton, N. J., has just decided to put in a system of water works, which announcement will be of interest to contractors and others.

McKim, Mead & White, New York, have made the plans for a fine residence for E. A. Saunders, to be erected at New Haven. It will be heated by two Mercer boilers and a Cottage boiler will furnish hot water for demestic use. The house will have three bathrooms and a first class system of plumbing.

A \$50,000 ADDITION will be built to St. Francis Orphan Asylum, at New Haven, Conn., and will be heated by steam.

C. HERPICH has the plumbing contract for the new house being built by Wm. Beck, at New Haven, Conn.

R. G. CARLETON and D. A. THOMPson are to build a double house at New Haven, Conn., to be heated by hot water and have a system of plumbing.

A PETITION from the plumbers of Lawrence, Mass., to the City Council, led to reopening the competition to supplying water closets for the public schools.

THE CLARK & WELLINGTON PLUMBING COMPANY, Bridgeport, Conn., are finishing work on two Thatcher furnaces for W. It Muirhead's house on Pembroke street, two for J. Funkie on Catherine street and one for D. F. Bogey on North avenue. They also have the contract to do the plumbing for a new house for W. S. Hurlburt and one for George Bright on Joseph street.

THE CONTRACT for ateam heating for the jail at West Ches'er, Pa., has been awarded by the county commissioners to James Bros., a well-known West Chester firm. The price was \$700.

HAYES & ROURKE, New Haven, Conn., have the contract for the plumbing in two houses to be built by II. E. Franklin.

THE PLUMBING CONTRACT for the new house of C. L. Deming, at New Haven, has been let to Sheahan & Groark, and the heating contract to the New Haven Heating & Plumbing Company.

THE QUEENS COUNTY SUPERVISORS awarded the contract for heating and ventilating the Long Island City, N. Y., Court House to Baker, Smith & Co., for \$1536.

THE WALTHAM HEATING & PLUMB-INE COMPANY, Waltham, Mass., have been awarded the contract for plumbing the B. M. Company houses.

Bids will be received till July 16 for the heating apparatus for three engine houses at Springfield, Mass., at the office of J. B. Dunleavy.

HUBBARD & Sons have the plumbing contract for the new hospital at Urbana,

Rubel & Co, 75 and 77 Lake street, Chicago, are to install a steam heating plant in the 16-flat building of II. M. Gromwold, 32 and 34 Walnut atreet, and a hot water heating plant in the six flat building of G20. W. Milliken, Thirtieth street and South Park avenue.

E. Bagoor, 169 and 171 Adams street, Chicago, has the contracts for plumbing, gas fitting and sewerage in the following apartment buildings:

E. E. Wilcox, Forty third street and Champlain avenue; Chas. F. Atkinson, 31 to 37 Lake avenue; F. II. Winston, 377 to 383 Superior street; James V. Burk, 2314 West Congress street.

J. J. Wade & Son, 276 Dearborn street, Chicago, have the contract for the plumbing, gas fitting and sewerage in the Reliance Building, State and Washington streets.

KEIM BROS. & MERTY 289 Kinzle street, Chicago, have the contract for steam heating in the Motley School, Shell street and Chicago avenue.

THE J. L. MOTT IRON WORKS 311 and 313 Wabash avenue, Chicago, are to place a star combination heater in the residence of J. Stanley Grepe, Evanston, III.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until July 31, for the plumbing, gas piping and electric wire conduit work in the United States Custom House and Post Office Building at Newark, N. J. Drawings and specifications may be obtained at the office of the Supervising Architect, Washington, or from the superintendent at Newark, N. J.

THE EXETER BOILERS AND RADIATORS are to be used in the new Hotel McKinley, at Boston, and also at the Saco House, Saco, Maine.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until July 31 for alterations in ventilation and repairs to steam boilers and heating apparatus in the United States Court House and Post Office Building, at Atlants, Ga. Drawings and specifications may be obtained at the office of the Supervising Architect, Washington, or from the Custodian at Atlants, Ga.

THE CONTRACT for heating St. Patrick's new church, at Fort lloward, Wis., has been awarded to C. L. Anderson of the Lake Superior Heating Company, for \$1245. The church will be heated by steam furnished by a locomotive fire box boiler, 44 inches by 10 feet. There will be 1700 feet of direct radiation and a stack of 250 square feet of indirect radiation.

C. C. STEBBINS, Albany, N. Y., has taken the contract for the plumbing, roofing and hot water heating of the residence of  $\Lambda$ . D. Mynders, which is now in course of construction.

ALEXANDER DON & Co., Newark, N. J, are setting some tanks and doing some plumbing and ateam fitting work at the Madison Square Garden, New York, in preparation for the World's Fair Exhibition, which is the next attraction to appear at this well-known pleasure resort.

CORBIN, McKINNEY & Co. are going to put steam heating apparatus into the Exchange Block, at Rossville, Conn.

THE KELLY & JONES COMPANY 48 to 52 North Clinton street, Chicago, have the contract for steam heating in the Frear Estate Building, 105 to 109 Madison street.

The Theo. Jacobs Company, 72 and 74 Market street, Chicago, are to install a steam heating plant in the State Safety Company Building, State and Van Buren streets.

THE CONTRACT for heating and ventilating the new central fire station at Somerville, Mass., was awarded to the Smith & Anthony Company, Boston, at a cost of \$993.

# STEAM AND HOT WATER.

The Niagara Radiator.

The illustrations presented herewith show a general view and one of the intermediate loops of the Niagara radiator, made by the Niagara Radiator Company of Buffalo, N. Y. This company recently erected a manufacturing plant at North Tonawanda, a few miles from the city named, which is interesting from the fact that it is altogether modern and is said to be provided with many labor saving devices and economical features, and will have an annual productive capacity of 1,000,000 feet of radiation. The works were lately put in operation and some preliminary shipments of goods have already been made. Fig. 1 shows the general appearance of the radiator, which is constructed with the idea of appealing to the artistic teste of the public. The two end acctions are made solid, giving the radiator a more finished appearance and affording opportunity for a different character of ornamentation than that usually employed. The intermediate loops, one of which is shown in Fig. 2, are of the three-column type, which has been adopted by the manufacturers, as they say it gives the best and quickest circulation for both steam and hot water. The smooth nipple connection



The Niagara Radiator.—Fig. 1.—General View of Radiator.

is employed in joining loops, using wrought iron nipples tapered in a lathe to insure a perfectly tight joint, and being connected at both the top and bottom they can be used for either steam and hot water. The radiators measure 10½ inches at the widest part, and each section takes up 3 inches of floor space. This allows ample air space between the

different sections, and it is claimed a more rapid and free circulation of air is the result. The radiators are made in four different hights—20, 20, 32 and 38

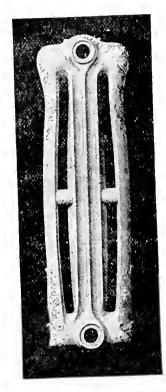


Fig. 2 - Intermediate Loop.

inches—exposing, respectively, 4, 5, 6 and 7 square feet of surface per loop.

### HEATING NOTES.

THE NEW CLASS to be established in the New York Trade School, New York City, for instruction in steam and hot water heating, will be atarted on January 2, 1895. It will be a day class, and will occupy a course of three months. The co-operation has been secured of the New York City Master Steam and Hot Water Fitters' Association, who will appoint a committee to supervise the work of the class.

THE ROYAL hot water and ateam heaters are the subject of a circular issued by Hart & Crouse, Utica, N. Y. The circular gives small views of the heaters, and the remaining three pages are devoted to testimonial letters and lists of references. The letters of testimonial come from owners of greenhouses, residences, public buildings, &c., located in all parts of the country, and are all of recent date.

WE ARE IN RECEIPT of catalogues relating to Richmond heaters for steam and hot water published in the interests of the Kennedy & Sullivan Mfg. Company, Holyoke, Mass.; George T. Barnes, Newburg, N. Y., and Grassler & Gezelachap, Milwaukee, Wis. All these pamphlets centain illustrated descriptions of the Richmond heaters, besides many testimonial letters, and, what

is of especial interest, views of residences and buildings in the different neighborhoods which are heated by the Richmond apparatus.

The popularity of the Cottage boiler made by the II. B. Smith Company, Westfield, Mass., has made it necessary to prepare three new sizes, the largest to carry 800 feet of radiation. One of this size has just been put in their showroom on Centre street, New York.

CHAS. S. WALTHER, vice-president and manager of the Nisgara Radiator Company, Buffalo, N. Y., was one of the visitors to the heating trade in New York City this week.

## Trenton Pottery Strike Settled.

After a shut down of more than six months, the difficulties that have caused a suspension of work in the large pottery center at Trenton, N. J., have heen adjusted through the intervention of Senator Smith of New Jersey, and the works will, it is said, be atarted up again at cnce. When the potteries closed, on January 1, the manufacturers offered a reduced scale of from 25 to 40 per cent., which the men refused. In accordance with the request of the manufacturers, Senator Smith was induced to interest himself as a mediator between them and their operatives, and on July 11 a committee from both sides fully discussed the matter in the Senator's presence at Washington with the result that the manufacturers agreed to start up if the men would accept a reduction of 12½ per cent, in their wages. This proposal was accepted. The manufacturing potters of Ohio and Pennsylvania where the same controversy had closed the works were not represented at the meeting, but it is believed that they will be influenced by the action taken, and that a settlement of the troubles on a similar basis will have the result of opening all the closed potteries in those States.

In an address delivered by Governor Northen of Georgia, at the opening of the Augusta Exposition, he stated that the agricultural products of the Southern States, exclusive of cotton, for the past ten years, will average more than \$1,000,000,000 yearly, or a total of \$10,669,000,000. The products which yielded this vast sum are corn, \$300,000,000; wheat, \$49,000,000; oats, 35,000,000; tobacco, \$36,000,000; sugar and molasses, \$36,000,000; rice, \$9,000,000; hay, \$2,500,000; potatoes, \$19,000,000, and other crops, \$185,000,000, making the enormous total of over \$10,000,000,000. The figures he mentioned were authoritative, having been obtained from official sources in Washington.

Borings have been begun for the purpose of determining proper locations for the piers of the New York and New Jersey Bridge. Charles B. Brush is the engineer in charge of this work.

# PLUMBING and GAS FITTING.

The Committees of the Na-1 tional Association of Master Plumbers.

The following have been announced as members of the different committees of the National Association of Master Plumbers appointed by President John Mitchell:

#### EXECUTIVE COMMITTEE.

John Mitchell, 113 Hudson street,

New York.
L. B. Cross, 1212 Main street, Kansas City, Mo.
H. J. Pattison, 258 West Eighteenth street, New York City.
W. E. Goodman, 444 E. Water street, Milwaukee, Wis.
D. G. Finnerty, 478 Boylston street.

D. G. Finnerty, 478 Boylston street, Boston.

James Meathe, 73 Shelby street, De-

troit, Mich.

Henry G Gabsy, 892 Third avenue,
New York.

John Trainor, 307 Mosher street,
Baltimore, Md.

C. C. Dawstoe, 290 Seneca street,

Cleveland.

Paul Redieske, 99 Claybourn avenue, Chicago.

## APPRENTICESHIP COMMITTEE.

Thos. II. Radcliffe, 846 Fulton street, Brooklyn.

Wm. J. Gault, 509 DeKalb avenue,

Brooklyn. Geo. B. Lewis, 660 Fulton atreet, Brooklyn.

#### ESSAY COMMITTEE.

Jeremiah Sheehan, 1717 Washington avenue, St. Louis.

Thos. Cantwell, 1004 Olive street, St. Louis

Frederick Abel, 909 N. Sixth street, St. Louis. John F. Reardon, 3841 Finney ave-

nue, St. Louis. F. R. O'Neil, 904 Pine street, St.

Louis.

## LEGISLATIVE COMMITTEE.

Jos. R Quinter, 1414 Rhode Island avenue, Washington, D. C. T. V. Noonan, 1128 Fifteenth street,

N. W., Washington, D. C.
James Ragan, 1503 Pennsylvania avenue, N. W., Washington, D. C.
Wm. Reynolds, 1728 Pennsylvania avenue, N. W., Washington, D. C.

James Cunningham, 930 S street, N. W., Washington, D. C.

### SANITARY COMMITTEE.

Jno. L. E. Firmen, 1236 Valencia street, San Francisco, Cal.

Jno. B. Butterworth, 1809 Polk street. San Francisco, Cal. James McGivney, 665 Franklin street,

Oakland, Cal. Jno. Crimmins, 624, South Spring street, Los Angeles, Cal. L. Scholes, 262 South Los Angeles

street, Los Angeles, Cal.

E. Hostetter, at 509, and Terry Bros., at 511 Thirty ninth street, Chicago, sustained a slight loss in their plumbing shops from a fire in the block.

## Gas and Gas Fitting.—III.\*

BY J. W. HUGHES.

The Distribution of Gas from the Gas Holder through the Town.

Having our completed gas works with holders full of gas, the next question is to get it to the consumer. this purpose it is necessary to lay the mains or pipes under the streets. As these articles are specially intended for the gas fitter, as best known to the genersl public-viz., the man who introduces the pipes into the houses and puts up the gasaliers and brackets-it will not be necessary to go into the general details of the various processes used in the laying of large street main pipes, but simply give a general idea of them so as not to break the continuity of the

subject. The first care of workmen employed in the fitting of gas pipes, or any work that may bring them into immediate contact with gas, must be for their own bodily welfare (health). Gas of any kind if breathed into the lungs is a deadly poison, some kinds of gas being more deadly in their effects than others, but the danger is ever present and dif-fers only in degree. A workman who is compelled to work for any time where it is impossible to avoid inhaling gas should take such precautions as may be within his power to reduce the danger of suffocation to a minimum. joint and fitting should be tested before attempting to put them together in an excavation, or any other place where a final connection may have to be made with gas turned on, as it generally is. A short time ago in the city where the writer lives an old employee of the gas company lost his life for want of such precaution. A bolt he had to acrew up was too short or had some defect in the screw thread that compelled him to work longer than would otherwise have been necessary over a large escape of gas, resulting in his being overcome to auch an extent that he died. There should always be an intelligent helper at hand in case of accident to afford immediate assistance, and the work-man, the moment he begins to feel the least giddy, or confused, should go away from where the air is impregnated with gas, preferably out into the open air, and fill and empty his lunga by inhaling all the fresh air he can and rapidly breathing it out again, repeating the operation for a number of times. And it is not safe after once being overcome, or partially so, to at once expose oneself to the gas fumes, but a considerable interval of time (several hours) should elapse before so doing. any one is overcome by gas the usual means taken for his recovery are the same as for one smothered from any other cause, the details of which will be given later.

The mains leaving the gasometer are usually made of cast iron of such size as the magnitude of the work may call for, and are laid in trenches, suitable valves

being fitted in the vicinity of the gasom eter for stopping off and controlling Gas regulator valves for the the gas. proper adjustment and maintenance of the pressure are also frequently used. It is customary in well managed gas works to first earry the gas to what is known as the station meter, which serves to measure the same and keep a record of the consumption. In laying mains care must be taken to so grade them to certain points that any moisture that may accumulate in the pipes will run to a place provided for the collection of the same, called a siphou. This is so fitted that a pipe from it comes to the surface of the ground, to which, from time to time as may be necessary, a pump is attached and the accumulated liquid (gas water) pumped out. This is carefully saved and from it are derived certain substances of commercial value.

There are various kinds of joints used in putting gas mains together, the ordinary calked lead joint, Fig. 2, made by driving oakum into the hub or large end of the pipe and afterward running in molten lead which is set or wedged tight with the calking tool, Fig. 3, being one common kind of joint. Another is made by a similar arrangement of the ends of the pipe, but the space is filled with oakum, soaked in a mixture of red lead and oil, and a third, Fig. 4, is made by having the ends of the pipe so arranged that they make a close fit and the spigot end of the pipe, being well painted with red lead, is simply driven into the hub, that is made to correspond with a fair amount of exactness. Where wrought iron pipes are used the ordinary screw thread is employed, which is put together with red lead and screwed up with tongs.

Referring again to Fig. 2, A is the large end of the pipe, called the hub or socket; B, the small end, called the apigot; C, oakum driven in with the calking tool; D, lead poured in hot and afterward calked or driven tightly home with a calking tool. The calking tool for driving in the oakum is shown in Fig. 5. The different calking tools vary in shape, size and length, accord-

ing to the work to be done.

The quantity of lead to be used in making a joint of course varies with the size of the pipes. A rule is 1 pound of lead for each inch of diameter of pipe, or 4-inch joint 4 pounds of lead. and so on; but common sense and brains have to be exercised in this as in all other matters. It is safe to say that the pipe layer must leave enough apace for lead above the oakum to insure a solid body of lead being in the hub. A thin skin on top of the oakum is not a lead joint, but only the skeleton of one. No special skill is required in making leaded joints when the joint to be made is upright so that the lead can easily be poured into the hub, care being taken to drive the oakum home hard to prevent the lead running into the pipe. It is next in order to pour in the lead. It should be hot enough to run freely, but not red hot, and a sufficiently large pot or pouring ladle should be used to enable the joint to be made with one pouring—that is, a good joint is not made if the space to be

<sup>\*</sup> Copyrighted, 1894, by David Williams.

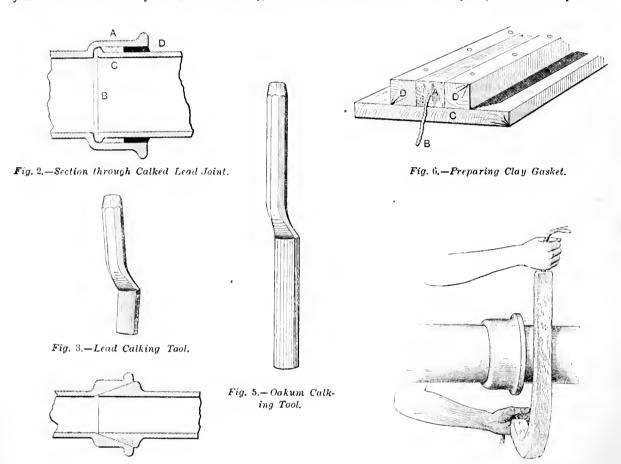
filled by the lead is only partially filled on the first pouring, and the operation has to be completed by a second.

When the lead has cooled it is calked by means of the calking tool and ham mer, care being taken not to split the hub, which can easily be done if too large a hammer is used or too violent a blow is struck What are called "slugging" blows must not be used, but a succession of solid taps sufficient to fully expand the lead and make the joint tight and no more is what is required. Making hub and spigot joints with red lead and oakum is a similar process to the one just described, except that the joint is made tight without the use of lead. The method of putting together pipes with the fitted joint will be understood by an examina-

1½ inches square. The distance these strips are placed apart corresponds to the size of the desired gasket. The space formed by the two strips and the board to which they are nailed forms two sides and the bottom of a trough, or gutter. Work in the clay, putting into the center of it a piece of strong string several inches longer than the clay, to keep it together, as in Fig. 6. The wood must be kept well moistened and the clay be of such a consistency that it will hold together, about the same consistency as ordinary glaziers' putty, which material, by the way, is frequently used for the purpose when small joints are to be made.

Having worked the clay well down into the groove and smoothed it off on the top, take hold of the two ends of

the gasket and calk tight, as before described. A little practice is, of course, required to get into what is called the hang of it, but the operation is a simple Again, a word of caution. Great care must be taken before forming a lead joint that there is no water or moisture in the joint. If there is, the lead will be violently blown out and the workman is likely to have to lay upfor repairs, and if he escapes with his eyesight uninjured he will be fortunate. Where joints have stood in the rain any time with only the oakum in them, it is safest, and therefore best, to remove the oakum and calk in fresh. But the better plan is not to let joints stand, but finish them at once if possible. Where a joint is doubtful on the moisture point, a little tallow put into it has



GAS AND GAS FITTING.

tion of Fig. 4. It is sometimes called the stopper joint, it being similar to the stopper in a glass bottle.

Fig. 4.—Stopper Joint.

When leaded joints have to be made in a horizontal position a special mode of procedure is required, differing somewhat from that employed in making an upright joint, the special features having reference to the method employed in introducing the molten lead. To do this it is necessary to use what is called a "clay gasket," although there are now in the market special gaskets made for the purpose. To prepare the clay gasket, take a sufficient quantity of ordinary clay, well puddled (mixed). Have prepared a piece of flat board of sufficient length for the purpose—vlz., long enough to make a gasket on that will completely encircle the pipe. To this nail two strips of wood of a size to suit the gasket to be made, which varies according to the size of the joint, but is usually about

the string projecting from the clay and lift the gasket out of the gutter. Pass one end of it under the pipe, as in Fig. 7, bringing it around on the opposite side to the top of the pipe, Fig. 8, where cross the two ends of the gasket so that a small cup or "pour hole' will be on top of the pipe. Keep one angle of the gasket against the opening of the joint, being careful not to work the clay into the joint, and see that it firmly adheres to the pipe. This is best done by rubbing it with the hand well moistened just before the lead is ready to pour, the object being to have the clay sufficiently tirm to resist the weight of the lead while in the molten state.

Next pour in the lead by the pour hole, and as soon as it has set remove the gasket, trim off the projecting piece that has been left at the joining point, trim off with a sharp chisel any inequalities caused by the non-fitting of

a quieting effect. Always pour from the back of the joint—that is, away from the opening—and keep the head away from the line the lead will take if violently blown out.

Fig. 7 .- Putting Gasket Around Pipe.

Referring to Fig. 6, A is the clay forced into space formed by bottem board C and strips D D nailed on to it; B is the string projecting from the clay.

Fig. 7 is a sketch of the gasket held in the hand by the string just previous to passing it around the pipe, showing one hand holding the gasket up, while the other, passed under the pipe, has caught the string of the lower end in order to draw the gasket around the pipe.

pipe.

Fig. 8 shows the position of the gasket after it has been passed under the pipe and just before turning down on top of the pipe to form the pour hole. In doing this the workman sits astride of the pipe, back of, and facing toward, the rear part of the hub.

The pour hole is formed by keeping the two ends of the gasket away from the face of the hub for 1 inch or 2 inches on the top, then laying them down on the pipe and working a suitable sized and shaped aperture into which the lead can conveniently be poured. One angle of the gasket fits against the aperture in the joint which is to receive the lead, and if nicely adjusted, when the gasket is taken off the joint will be found filled flush and even, and no trimming will be required except the removal of the plece that has filled the pouring hole.

In trenching there has to be made at proper intervals a depression or recessed part in the bottom of the trench, as in Fig. 9, and sometimes at the sides when large pipes are being laid, to afford space in which to perform the various operations of joint making.

Sometimes it is more convenient, especially in old work, to connect them by means of a saddle piece and bolts, as in Fig. 11, the joint between the saddle piece and main being made tight with red lead putty.

## Newark and Paterson Plumbers.

At the last meeting of the Master Plumbers' Association of Paterson, N. J., they entertained quite a large delegation from the Newark Association. The members of the Newark Association drove over to Paterson and arrived at the association hall at the close of the regular business session, when President Berla of Newark was invited to preside over the meeting. Refresh-

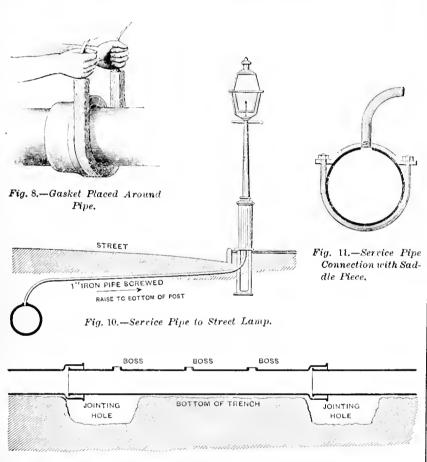


Fig. 9.-Section through Bottom of Trench.

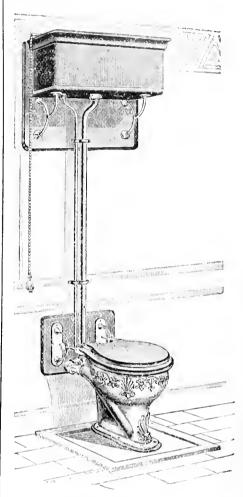
#### GAS AND GAS FITTING.

The mains are laid sufficiently below the surface to insure their freedom from injury by the weight of passing vehicles, and must be protected against shifting or disturbance, as a broken joint and a large escape of gas is a serious matter, frequently involving the loss of life and property. At the proper intervals to the mains are attached the service pipes that are to serve as means for conveying the gas to the different buildings and lamps. These are usually of wrought iron pipe with screw joints, and are connected with the mains in several ways. It is better they should be taken from the top of the main and have a decided rise from the main to the building or lamp they are to supply, as in Fig. 10. The usual method of connecting them to the mains is by means of a screwthread, a suitable hole being drilled and tapped into the main for the purpose. A boss is generally formed on the mains for this purpose.

were served and numerous ments speeches made. President John Hlckman was ably assisted by ex-Alderman Kearney in extending hospitality to their guests. Secretary Don of the Newark Association was the bearer of a present to Levi McBride, one of the Paterson delegates to the Detroit convention. It was presented with a fitting speech, and Mr. McBride with becoming modesty showed his present to all the members and visitors. The Newark plumbers took this opportunity to invite the Paterson plumbers to join them in their first annual outing to Pleasure Bay, which will take place on July 27, and by unanimous vote of all present the invitation was accepted. Invitations were also extended to the supply houses of Newark and Paterson, and representatives from some New York houses are expected to join the party, which leaves Newark at 7.30 a.m. to take the steamer at New York.

#### The Lucania Water Closet.

The Pierce, Butler & Pierce Mfg. Company, Syracuse, N. Y., are offering the trade their latest production 11 water closets, known as the Lucania, a general view of which is shown in the accompanying illustration. It is an improved siphon jet closet, carefully constructed and thoroughly tested. The



The Lucania Water Closet.

manufacturers furnish a tank made expressly for the closet, which is of ample size to thoroughly flush it, the ball cock being practically noiseless, and all the trimmings of the best materials and workmanship. The Lucania closet is made in four different combinations at varying prices, the finish being ash, cherry and oak. The No. 1 combination includes an embossed Lucania siphon jet closet, with round cornered tank and board seat with cover, back and solid brass adjustable brackets, solid brass tank brackets, flush and supply pipes, straps, offsets and bolts, all nickel plated, as shown in the cut, without marble floor slab.

New Plate olass show windows and a fine display of modern plumbing fixtures, a handsome show of gas chandeliers and fixtures and a variety of steam, hot air and hot water heaters, gas, gasoline and oil stoves and a line of stoves, refrigerators, tinware and house furnishing goods show the enterprise of Curtiss & Pierpont at New Haven, Conn. Their increasing business made larger quarters necessary and their recent opening presented many attractions.

LAWRENCE TROTTER and EDGAR BUCK, practical plumbers, formerly with

Forney Bres., have entered into part. nership and have opened a shop at 1714 Eleventh avenue, Altoona, Pa.

### OBITUARY.

BENJAMIN DOUGLAS.

We give herewith a portrait of the Hon. Benjamin Douglas, president of the the corporation of W. & B. Douglas, Middletown, Conn., whose death was noted in our last issue. Mr. Douglas died on Tuesday, 26th ult.

Mr. Douglas was bern at Northford, Conn., April 3, 1816, of Scotch ancestry, and was therefore in his seventy-ninth year at the time of his death. His father was a farmer, whose ancestors were among the earliest settlers fors were among the earliest settlers of New England, as his grandfather was Col. William Douglas, an officer in a New Haven regiment of the Revolutionary War. He acquired the rudinents of his education by a few months' attendance at the district school during the winter while a led months attendance at the district school during the winter while a lad and by extensive reading. Like all farmers sons, he spent his summers working on the farm. When 16 years of age, or in 1832, he came to Middletown and ap-

prenticed himself to a machinist. In 1839 he joined his brother William, who in 1832 had with W. H. Guild established a machine shop.

For three years they carried on the business of an ordinary foundry and machine shop, manufacturing hydraulic rams and pumps. From the inven-tion in 1842 of the celebrated tion in 1842 of the celebrated revolving stand pump, the success of this firm was established. Year after year the business increased until the name of W. & B. Douglas was known the whole world over. The corporation have had a house in New York City for the past 50 years, and their Chicago branch was established some 20 years ago.

Mr. Douglas always attended

Mr. Douglas always attended strictly to his business until his health prevented it, and since then has almost daily been driven down to the factory which he founded. He also found time to devote to public enterprises and works of be-nevelence. He became early in life an earnest friend of the

colored people, and when the war broke out he was prominent among his fellow citizens in the support of

the Government.
Mr. Douglas filled many positions of honer and trust in the city and State. He was Mayor of Middletown from 1849 to 1855, and a member of the General Assembly in 1854. While in the Legislature he was known for his broad and progressive views and his businesslike manner in caring for the State's interests. In politics Mr. Douglas was a Republican, having been a delegate at the convention which nominated Fremont and one of the Presidential electors when Lincoln was chosen President in 1860. He also served as Lieutenant - Governor of Connecticut in 1861. He was a member of the Board of Education for many years, and helped to establish the schools on their present broad

Mr. Douglas united with the Congregational Church in Northford in 1831 by profession of faith, and joined the South Church in Middletown by letter in 1832. He was for many years its Sunday school superintendent and was a deacon for nearly 40 years.

Mr. Douglas was a director in the

Middletown Gas Company and the Air Line Railroad and a director and large stockholder in the People's Fire Insurance Company. He was the first president of the First National Bank, and continued to hold that office until Hon. John N. Camp was elected, since Hon. John N. Camp was elected, since which time he was a director. He was also for years president of the Farmers and Mechanics' Savings Bank, and was for 26 years president of the Middletown Bible Society. He was also for many years a trustee of Wesleyan University, and was at his death a trustee of the Connecticut Hospital for the Insane. On his twenty-second birthday, April 3, 1838, he married Mary Adeline, daughter of Elias and Grace Totten Mansfield Parker, and a niece of Major-General Joseph K. Mansfield. She died June 24, 1885. Mansfield. She died June 24, 1885. Mansfield. She died June 24, 1885. There were six children, of whom three survive—John Mansfield, born in Norwich; William and Benjamin, Jr. Three children have died—Sarah Kirtland, September 21, 1841; Benjamin, December 18, 1843, and Edward who died in Paris, May 22, 1889.

Mr. Douglas was a pioneer in the manufacturing field, and occupied

BENJAMIN DOUGLAS.

from the outset a very preminent position as one of the feremest and most successful of American manufacturers. The worldwide reputation and standing which the house of which he was the founder enjoys is a noble tribute to his industry, perseverance, zeal and integrity.

The story of his life is the story of one who by his perseverance, indomitable will and Christian character, attained a large measure of success, exerted a wide influence for good and had the confidence and esteem of every

one who knew him.

## TRAPS AND VENTS.

THE LOWELL HEATING & PLUMBING COMPANY, Lowell, Mass., of which D. W. Mullin, formerly with D. H. Wilson & Co., is manager, have epened a place of business at 43 East Pine street and are ready to receive orders for plumbing, steam heating, gas fitting, &c.

IN HEB BOOK, "Women, Plumbers and Dectors," Mrs. H. M. Plunkett says: "If wemen and plumbers do their

whole sanitary duty, there will be comparatively little occasion for the services of the doctors." She claims no originality in the book, because "sanitary science is a science of cellated facts."

FAY & FAHERITY will open a plumbing shop in Windsor Locks, Conn.

E. GRIFFITH is erecting a new plumbing shop at 7 Tichener street, New-

GEORGE S. O'NEILL, a plumber, steam and gas fitter, has gone into business at 57 Godwin street, Paterson, N. J.

THE LICENSES GRANTED to two Jersey City, N. J., plumbers have been rescinded because they dld not file their bonds with the proper officer.

ZALMON GOODSELL was one of the speakers at the Newton, Conn., Fourth of July celebration.

THOS. KELLY & BROS., manufacturers and patentees of Kelly's self acting water closets, noiseless water closets. self acting urinals, step and waste ceck

and sanitary wash basin, 123 Franklin street, Chicago, have issued an interesting circular addressed to architects and the plumbing trade. After referring to the fact that they depend exclusively on honorable methods of advertising to recommend their goods and empley ne unscrupulous parties to decry the goods of other makers, the attentien of the reader is called te a large number of testimonials of the Kelly line of plumbing specialties. The chief sanitary inspectors of Chicago and Buffalo contribute strong statements in their favor, while plumbers and owners from the Atlantic to the Pacific express their complete satisfaction. The testimenials cover hotels, schools and other places of frequent use, as well as private families. The frest proof closets particulate results in the control of t ticularly come in for a large share of praise.

THE UNION HEATER SUPPLY COMPANY, Detroit, Mich., are improving their Helper gasoline plumbers' fire pot with a brasa tank and other details to increase its usefulness. The frame

which supports the metal pet can be removed and the burner turned so as to enable the flame to be threwn against an old joint to be melted, and can be freely moved without danger of being extinguished.

HASTINGS & HARKINS is the name of a new firm who have opened up in buslness as plumbers at 115 South Rose street, Kalamazoo, Mich.

THE PARTNERSHIP existing between Peter Schneider and U. J. Stoltz, Murphysbore, Ill., as the City Plumbing Company and U. J. Stoltz & Co., has been disselved. The business will be centinued by Peter Schneider.

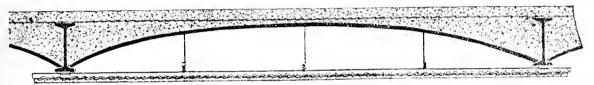
LEWIS & WILSON have moved their plumbing establishment to 819 Wood street, Wilkinsburg, Pa., where they make a fine display of baths and lavatories connected with the water supply, se that they can be shown as used. They also show a varied line of cooking stoves and gas ranges, making a specialty of the Favorite line of gas goods. They are engaged on some plumbing work that is said to be the finest in their city.

## ROOFING AND CORNICE.

## Instruction in Roofing and Cornice Work.

It has been decided by the management of the New York Trade School to establish next season a class for instruction in roofing and cornice work. demand for such a class has been felt for some time, but it is only now that the trustees have seen their way to adding another to the increasing lists of trades taught. It is believed that the opportunity offered in this class will be much appreciated by the younger members of the trade. The New York Association of Master Roofers and Manufacturers in Sheet Metals have signified their willingness to co-operate in the matter, and they will appoint a trade school committee for the supervision of the work of the class, similar to those appointed by the associations of master plumbers, master painters, master stone cutters,

to 8 feet apart, according to the weight the floor is to sustain. In setting these arches the channel sides are placed upward, the proper curve being given to the iron by machinery especially adapted to the purpose. Between the channel irons are placed wood centerings in such a way as to leave the channel arches and I-beams exposed. These arched ribs or haunches are first filled with concrete, after which expanded metal is laid across the arches and covering the false floor. Above these concrete is placed to the thickness required. As soon as the concrete is set the false floor and all other wood work is removed from underneath, this leaving a system of steel and concrete arches and flats of concrete, having embedded in their underside a continuous layer of expanded metal. In constructing the floors of a building this scheme is continued block by block until the entire interesting to receive a catalogue of sheet metal goods from such a far distant city. In presenting this catalogue to the trade the E. K. Dillingham Iron Company mention that they have gone into the manufacture of sheet metal goods on a larger scale than has heretofore been attempted in Texas, and feel confident that the trade of their State will patronize the home enterprise. Among the specialties they mention are round beaded galvanized steel eave troughs in 10-foot sections and galvanized steel conductor pipes in lengths. The concern are equipped with machinery for curving corrugated iron for awnings, arches, &c., and have acquired the exclusive right to manufacture and sell Harry's patent galvanized corrugated iron cisterns and windmill tanks in Southern Texas. They refer to their excellent facilities for turning out all kinds of



Expanded Metal for Floors and Ceilings.—Sectional View, Showing Method of Construction.

&c. The class will be a day one. It will commence work on January 2, 1895, and will have a course of three months. The course of instruction is not yet definitely decided upon. It will, however, he confined to work directly connected with the roofing and cornice trade, and will probably embrace the laying of simple roofing of varlous kinds, making and lining of gutters, making rain water leaders, chimney caps, ventilating caps and window caps, with other practical roofing work, together with simple and fancy cornice work. It is also proposed to include pattern drawing and cutting, so far as applies to the roofing trade. Any information in regard to the class may be obtained by application to the New York Trade School, First avenue, Sixty-seventh and Sixty-eighth streets, New York city.

## Expanded Metal for Floors and Ceilings.

Among the many uses to which expanded metal has been put, one of the most recent is its introduction into the construction of floors and ceilings of buildings, both large and small. It is referred to as an improved fire proof system, and has received the approval of many departments of buildings, as well as of architects, builders and contractors, who have examined into the merits claimed for it by the Expanded Metal Fire Proof Construction Company of 107 Chambers and 91 Reade streets, New York City. The arch and floor construction, in which expanded metal plates form an important part, may briefly be described as follows: Between the I-beams of a building channel iron arches are placed from 3

work is finished. The company state that floors can be made to stand any desired load by simply increasing or diminishing the number or weight of the steel arches and concrete. The srched steel channels and expanded metal furnish the foundation and bond for the concrete, thus combining lightness with great strength. The claim is made that tests performed by Prof. J. B. Johnson in the Washington University, St. Louis, Mo., demonstrated the fact that the carrying strength of a concrete slab 2½ inches thick was increased ten times by the use of a single layer of expanded metal.

The improved fire proof system of the company also provides for the finish of the floor arches, with or without suspended ceilings. When the ceiling is put upon the arch all the iron work is covered with expanded metal lathing, the ceiling consisting of tightly drawn furring atrips secured to I-beams and arches and covered with expanded metal lath ready for plastering. The claim is made that ceilings thus constructed will not crack and are free from stains, beside double fire proofing the floor arches above. The sectional view which we present herewith shows the manner of constructing the floor arches, and also of putting up the suspended ceiling.

#### FLASHINGS.

PAUL F. WEBER has opened a shop at 447 North Third street, Philadelphia, to do a general sheet iron, tinning and roofing business. He has worked for a long time for the J. S. Thorn Company.

THE E. K. DILLINGHAM IRON COMPANY, Houston, Texas, issue their first annual catalogue and price list. It is

cornice work. The catalogue illustrates and gives prices and tables of dimensions of the goods enumerated. A page in the pamphlet is given up to Kernan warm air furnaces, for which the E. K. Dillingham Iron Company are agents.

BERGER BROS. of Philadelphia make the statement that trade within the last two years has increased beyond their highest expectations, the panic year heing the best year they ever experienced both as to the amount of sales and profits. With the present low cost of producing supplies in their line and their facilities for handling goods in large quantities they look for a still larger trade in the future. Besides handling a general line of tinners' and roofers' supplies the firm carry an immense stock of tinners' hardware, covering almost everything in that line. They have just issued an 1894 edition of their catalogue and are sending copies to all who will take the trouble to make application for them.

THE GLOBE VENTILATOR COMPANY, Troy, N. Y., distribute neat circulars relating to the Globe ventilators of their manufacture. The folder refers to the ventilator, gives descriptions and illustrations of it, presents a few testimonial letters and shows an engraving of a residence at Lansingburg, N. Y., upon which these ventilators are used.

THE KNISELY & YELDHAM COMPANY, 68 to 74 West Monroe street, Chicago, are to furnish the copper, slate and tin work for the residence of Mrs. Periolat, Serf street, near Sheridan Drive.

Reports given by the Northwestern Lumberman indicate a serious shortage, amounting to billions of feet in the Northwestern pine region.

# TIM PLATES,

## Freight Discrimination against American Tin Plate.

We have received the following letter from Clarence R. Britton, secretary Britton Rolling Mill Company and the Cleve aud Tin Pla e Company:

"I have noticed in the last few issues of *The Metal Worker* several articles on discrimination in freight rates. I wish to call your attention to the discrimination of the American railroads against the American tin plate manufacturers. Inclosed you will find two circulars, one from the largest tin plate handlers in Wales and the other from a large importing house in New York. From this you will see that the rate on tin plates per 100 pounds from New York to Cleveland is 9.3 cents. Our rate to New York is 18 cents. The rates to St. Louis, Chicago, Cincinnati, &c., are less than Cleveland rates to these points. We have called the attention of the freight agents to this matter, but all the answer we get is that it is a "shame."

"It seems to us that the railroads are blind to their best interests. As it is, they obtain not over 200,000 tons of tin plate freight, for at least a third of the amount consumed is used on the Atlantic Ccast. If we manufactured all our plates they get not only freight on the finished articles, but on all the raw materials, which will be at least 2,000,000 tons, taking in iron ore, coal, steel, lumber for Wayand the sid of the lumber, &c. We need the aid of the railroads. We would not care about bringing our rates down to those of the importers if they would only bring their rates up to ours. All we want is to be on somewhat of an equal basis."

The circulars referred to by our correspondent contain figures of cost of delivery at a number of points above quotations given f.o.b. cars New York, Philadelphia or Baltimore. They cover 108 pound, 100 pound, 95-pound and 90 pound boxes. We choose as examples the figures on 100-pound boxes given below.

From the circular of C. S. Trench & Co., New York, March 14, 1894:

"For delivery at the following points the extra cost over the above offers made for import would be:"

Per box,	100 lb.	Per box,	100 lb.
$14 \times 20$ .	Cents.	14 x 20.	Cents.
Boston	6	Milwaukee	15
Buffalo	9	Minneapolis.	36
Chicago		Nashville	
Cincinnati		New Orlean	
Cleveland		Omaha	
Denver, Col.		Pittsburgh	
Detroit		St. Joseph	
East St. Lou		St. Louis	
Indianapolis.	15	St. Paul, Mi	
Kansas City		Sioux City	
Leavenworth		Toledo	
Peoria		Columbus	
Louisville			

From the weekly tin plate report of Thomas & Stirling, Liverpool, March 30, 1894:

the extra cost over the above would | of tin and terne plates from Great

		Per box,	
14 x 20.	Cents.	14 x 20.	Cen .
Boston	4.9	Milwaukee	16.4
Buffalo,	10.9	Minueapolis.	$\dots 27.8$
Chicago	16.4	Memphis	17.1
Cincinnati	13.7	Nashville	21.0
Cieveland	93	New Orleans	2.7
Columbus, O	hio,11.5	Omaha	256
Denver, Col	49.6	Pittsburgh	9.3
Detroit		St. Joseph	25.6
East St. Lou		St. Louis	
Indianapolis		St. Paul, Mir	
Kansas City.		Sioux City	
Louisville			

#### SCRAP.

GORSEMON TIN PLATE WORKS, near Swansea, Wales, were, on June 26, the scene of a serious riot. Three hundred tin plate strikers endeavored to prevent the workmen from starting the mills in opposition to the orders of the labor union. The police interfered to protect the workmen and a conflict ensued, in which many on both sides were severely injured. The Gorsemon Mills had been idle for some months, owing to a dispute as to the output. were restarted with workmen agreed to make 40 boxes a shift.

THE Cleveland Leader reports that the town of New Lisbon, Ohio, has been selected for the erection of a large tin mill by a newly formed company.

THE SETTLEMENT of the tin plate wage scale at Pittsburgh was followed by the full resumption of work-which had been temporarily suspended pending the conference-st the large tin Ing the conference—at the large the plate mills of Wallace Banfield & Co., Irondale. Ohio; American Tin Plate Company, Elwood, Ind.; United States Iron and Tin Plate Mfg. Company, Demmler, Pa., and others.

THE BLACK SHEET MILLS of the New Philadelphia Iron & Steel Company, New Philadelphia, Ohio, and those of the Falcon Iron & Nail Company, Niles, Ohio, resumed operations on Monday, on the settlement of the tin plate wage scale.

A CERTIFICATE OF INCORPORATION WAS issued at Columbus, Ohio, last week to the Morton Tin Plate Company, Cambridge, Ohio, who will immediately commence building black plate mills. At a subsequent meeting of the stockholders John W. Marquand, Charles L. Campbell, John C. Becket, John C. Morton and A. Beard were elected di-Morton and A. Beard were elected directors. The officers of the company are John W. Marquand, president; Chas. L. Campbell, vice-president; John C. Becket, secretary and treasurer; A. Beard, general manager. The plant will be located at Cambridge, at the junction of the Baltimore & Ohlo and Cleveland & Marietta railroads. The Cleveland & Marietta railroads. The buildings will be constructed of iron and steel. Modern machinery and appliances will be used. It is expected that tinning pots will be added to the plant later on.

BRITISH TIN PLATE EXPORTS still exarch 30, 1894:

"For delivery at the following points last year. The total foreign shipments

Britain in the month of June were only 25,000 tons, as against 37,000 tons in June, 1893.

PEDEN & Co., tin plate importers, iron merchants and jobbers, of Houston, Texas, announce by circular that R. P. Smith, who retired from the firm of Smith, Peden & Co. on May 1, had no moneyed interest in the firm, which is continued by the remaining partners, D. D. Peden and E. A. Peden.

THEOPHILUS D. MORGAN has tendered his resignation as superintendent of the New Philadelphia, Ohio, Iron & Steel Company, and will be succeeded by Jacob James, formerly superintendent of the Arethusa Iron Works, New Castle, Pa. Mr. Morgan contemplates entering into the manufacture of black plates for tinning purposes.

MERRY & CLARK, 535-547 West Fifteenth street, New York, advise us that their special brands of tin plates, known under the names Merry's Old Method, Monarch and Merry's Lion, have had a large sale among architects, builders and the trade in general, and numerous testimonials of them have been received, speaking in high terms of their excellent qualities. During the dull season, we understand, their trade has continued good, their orders up to July 1 having exceeded those of a year ago.

JENNINOS BROS. & Co., Leechburg, Pa., have announced their decision to start their sheet mills as a non-union establishment. The firm do not anticipate any trouble in making the change. Several of their old hands are willing to return as individuals, and a large number of workmen have been obtained from Apollo. The starting of this plant on a non union basis makes every plant in the Kiskiminetas Valley except one independent of the Amslgamated Association.

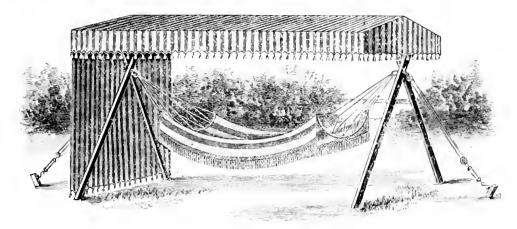
PHIL. R. JENNINGS of the firm of Saturday, by the "Campania," from a two months' tour in England and the Continent of Europe. In the course of his travels Mr. Jennings visited the South Wales tin plate districts and obtained a good insight into the condition of affairs there. He describes general trade in England as being fully equal in point of depression to that of this country.

The work of demolishing the World's Fair buildings at Chicago was expedited by a destructive fire on the evening of the 5th inst. It broke out in the Terminal Building and spread to the Administration, Mines and Mining, Elec-tricity, Machinery, Agricultural and Manufactures buildings, inclosing what was known as the Court of Honor. Some of these buildings were not completcly destroyed, but not much was left of most of them but shapeless masses of distorted steel frame work and charred timbers. The buildings belong to the Columbian Exposition Salvage Company, who have for some time been engaged in the work of tearing them down and disposing of the material.

## THE RETAIL STORE.

### Excelsior Hammock Swing.

The accompanying illustration representa a hammock swing put on the market by the American Roofing Company, 15-17 Public Landing, Cincinnati, Ohio. The roof frame is composed of two light iron rods at the outer edges and apex and a central bar of oak. It order for a few cakes, resulting, it is explained, in a great saving of gas. The goods are made in four sizes, as fellows: No. 1, 3 griddles with a capacity of 18 cakes at one time; No. 2, 3 griddles with a capacity of 24 cakes at one time; No. 3, 2 griddles with a capacity of 12 cakes, and a welle iron with 8 cakes, and No. 4, 2 griddles The manufacturers claim that the vise is simple in construction, durable and effective; that it is light and easily carried with other tools; that the form is such that it can be readily attached to a post or any convenient place, and that it will hold brass or iron pipe with the greatest firmness without the slightest injury. The vise is made in sizes Nos. 1,



Excelsior Hammock Swing.

is explained that the device can be knocked down in a small space for shipping; that it requires but a few moments to set up in position, and that when in position it is perfectly rigid.

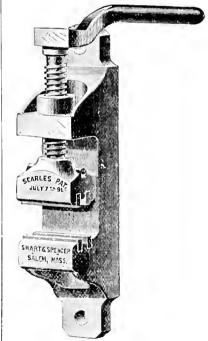
The point is made that the awing makes a handsome appearance, and that it is an ornament to the premises; that it can be converted into a tent by adding side curtains, and that where lawn space is not available the swing can be set on a veranda or porch. The swing is sold complete with one end curtain. Extra curtains for the end and sides, and hammecks in a variety of styles are furnished as desired.

### Gas Cake Griddle.

The Stuart & Peterson Company, Burlington, N. J., are offering gas with a capacity of 16 cakes, and a wifile iron with 8 cakes.

### Searle's Pipe Vise.

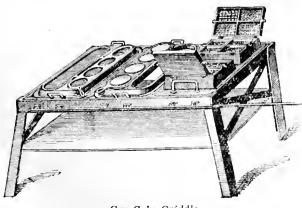
The accompanying cut represents a pipe vise put on the market by Smart & Spencer, Salem, Mass. The vise is described as having a body of cast iron, a screw of steel and four gripping jaws of the very best tool steel, which are reversible, thereby allowing all the edges of each jaw to be used. The point is made that when the jaws become dull from constant use they may be easily sharpened, or they may be renewed at a slight cost, thus making the vise almost indestructible. In the No. 2 vise the jaws are 2 inches long, thus giving a bearing on the pipe of 8 inches, and re2 and 3. No. 1 holds from 1 to 1 inch iron pipe, No. 2 from 1 to 1 inch iron



Searle's Pipe Vise.

pipe and No. 3 from \$ to 2 inch iron pipe.

The return from Washington to their homes—so far as they possess them—of the members of the various "industrial armies," is taking place with more or less speed. The retreat of the Commonwealers is not always "in good order," and many complaints are made in regard to their presence along the different lines of march.



Gas Cake Griddle.

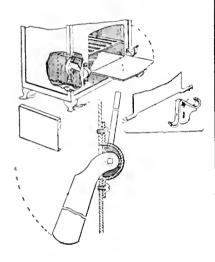
cake griddles, as illustrated in the accompanying cut. Each griddle and waffle iron ia controlled by an independent burner, so that it is not necessary to heat the entire frame to fill and sary to heat the entire frame to fill an

quiring, it is atated, but very little pressure to hold firmly the smoothest pipe. It is remarked that the jaws are diametrically opposite and that the strain on all four edges of the jaws is equal.

## STOVE TRADE NOTES.

Improvement in Oven Doors.

The Portsmouth Stove & Range Company, Portsmouth, Ohio, are introducing in connection with some of their goods an improvement in oven door construction, which is illustrated herewith. The idea is to prevent the disagreeable noise which usually ensnes when a drop oven door is thrown down and falls upon its supports. The arrangement is such that the door is automatically retained in a closed position without the aid of a latch, while an improved form of pedal or tumbler permits the door to be readily opened or closed at pleasure by means of the foot. The illustrations which we present represent the improvement and the manner in which it operates. The upper portion



Improvement in Stove Oven Doors.—Cut Showing the Various Parts.

of the cut shows a part of a stove with the oven door dropped into position and a portion of the casing of the stove broken away, so as to make clear the position of the counterbalancing arm. The extremity of one of the trunnions on which the door awings is squared and fitted in a corresponding opening in the outer end of a swinging arm designed to counterbalance the door. The bracket is recessed for this counterbalancing arm, and it is thus prevented from becoming disengaged from the trunnion. An adjustable friction spring is attached to the side of the oven and engages the free end of the counterbalancing arm, thus controlling the movement of the door when thrown open. The second largest portion of the cut shows an enlarged view of the counterbalancing arm or lever and its connection with the oven door. The right hand portion of the cut represents a detail of the pedal attachment or tumbler and its relation to the door, while the remaining portion of the engraving represents the casing or box, which is inserted between the oven and the outer shelf of the range and covera the counterbalancing lever with the friction apring which engages it. In operating the device, the door is

thrown open by applying the foot to the lower end of the tumbler and thrusting it backward. When the door approaches a horizontal position it overcomes the counterbalance or swinging arm, but the spring being properly adjusted engages the arm and checks the movement of the door authiciently to prevent a noisy rebound when it falls into position. In order to close the door the foot is applied to the upper end of the tumbler.

#### ODD PLATES.

THE ANSHUTZ-BRADBERRY COMPANY, Pittsburgh, Pa., send us a circular of their Tremont s'cel tubular side air blast furnaces, which states that "a blast of air is delivered in the combustion chamber just where the smoke is thickest and effects a combustion that saves fuel and gives perfect control of the fire. But this is not all. There is a large radiator, a big, heavily ribbed fire pot with asbestos packed cup joint, dust flue and a grate that is just the thing."

II. L. Mosher, with the Round Oak Stove Works, Dowagiac, Mich., spent the Fourth in New York renewing old acquaintanceships, and is now soliciting orders for goods in his line in New York State.

A LETTER RECEIVED from the Anshutz Bradberry Company, Pittaburgh, Pa., has a handsome lithograph at the top, giving the officers of the company, their Tremont trade mark and their name and address. An envelope which they inclose when an answer is desired is a pictorial history of the company. It shows the plant first occupied in 1844, their present works in Allegheuy, near a bridge across the river, a bell with the words, "long distance telephone," with their number "Manchester 47" beneath it, and the name and address in a pretty shade of blue, forming a pleasing contrast to their Tremont trade-mark, shown in a yellow tint.

W. S. FERRELL, who 28 years ago entered the foundry of the Abram Cox Stove Company, Philadelphia, to learn the molders' trade and for years has been the superintendent of their shipping department, is enjoying a vacation previous to accepting a more lucrative position with Jesse Jones & Co., manutacturers of paper boxes for hardware. On his resignation he was presented with a handsome Masonic mark by his associates.

THE BEAVER FALLS HEATING & VENTILATING COMPANY are a new concern who will establish themselves at Beaver Falls, Pa. The company will manufacture furnaces and heating and ventilating appliances. The capital stock is \$100,000.

THE LIEBRANDT & McDowell STOVE COMPANY, Philadelphia, are getting some new goods ready for the fall trade

THE LARGE WATER TANK that is used to supply the hollow ware manufacturing plant of the Stuirt & Peterson Company, Burlington, N. J., is located on the top of their highest building and

attracts wide attention. It is provided with a long handle and a cover and is painted black, so that it appears like a mammouth saucepan and can be seen at a great distance. To turn everything about a manufacturing plant to a profitable account is a long step toward a successful business.

Previous to joining the ranks of the benedicts W. E. Hopkin, superintendent of the stove repair department of F. M. Borden & Bros., Philadelphia, gave a supper to the following friends at the Delaware House: F. M. Borden, J. B. Borden, Wm. F. Habicht, Jos. McCall, C. B. Smythe, H. E. Borzell, Howard Seller, W. H. Borden, David Zelenski and Albert Brandt. At the supper his friends presented him with a handsome mosaic clock, the presentation speech being made by H. E. Borzell. The good wishes and good advice given were as abundant as was the hospitality of the host.

THE HOME STOVE COMPANY of Indianapolis have bought the plant of the Wells Mfg. Company, at Greenfield, Ind., and expected to put it in full operation last week.

Fox Furnace Company, 28 Vincent street, Cleveland, Ohio, are favoring the trade with a circular illustrating some of the leading furnaces which they manufacture. These are made under the name Fox, and are adapted for using various forms of fuel. Among the features to which special attention is invited may be mentioned double corrugated fire pot, triangular bar grate and gas tight joints. Their solid cast iron radiator furnace for soft coal is said to have but one joint above the gas ring and is thoroughly gas, smoke and dust tight.

THE CARTON FURNACE COMPANY of Utica, N. Y., make atrong claims for their soft coal amoke burning furnace, which they have lately placed on the market. It embodies the latest features, has self cleaning radiators, Smyth's triangular grate and vertical self cleaning combustion flues. It is substantial in construction, and the manufacturers expect a large demand for it.

WE HAVE RECEIVED from the Troy Nickel Works of Troy, N. Y., the first number of a publication which may properly be classed among the comic papers of the day. It is entitled Yours Truly and is published by G. L. Tyler & Son of Troy. It is full of comedies in picture and prosc, and the matter is by no means slow. The only advertisement is that of the Troy Nickel Works, this occupying the second and last pages. The merits of the Alaska goods are cleverly presented and the general make up is such that members of the trade receiving a copy of Yours Truly will be apt to keep it within convenient reach.

E. Bement & Sons of Lansing, Mich., have recently purchased all the patterns, atock, machinery and business of the Wilcox Heat-Light Company of Orand Rapids, Mich., and will now manufacture that line of oil stoves and gas radiators in their works at Lansing under

their own name. The company's line of oil stoves now includes among others the Standard, Eclipse, Challenge and Model. The superior facilities enjoyed by the company and their long experience in manufacturing insure to their customers prompt shipments.

IN ORDER to meet the demand for a first-class base heating wood stove, in which the fuel would rest on the bottom of the stove instead of upon the grate, the Michigan Stove Company have brought out the Maple Garland, possessing many features of interest. The decoration is artistic in character and the design exceedingly attractive. The constructive features include large feed door, capacious hot air circulating draft, single swing cover, heavy fire back and automatic damper. The company also call attention to the Carbon-Garland, a square parlor heater, for soft or hard coal. In this stove the grate and fire pot are about 7 inches nearer the floor than is ordinarily the case; the feed door is attached to the body of the stove instead of to the outer casing, and is fitted over tlanges, making this part of the stove, by means of a turn buckle, very tight; the grate is of the draw center pattern and the pipe collar is cast solid to the upper portion of the fire chamber. The combustion chamber is made in one piece and so constructed as to prevent smoke coming out of the feed door.

AT THE ANNUAL MEETING of the Somerset Stove Foundry Company, at Somerset, Mass., held on Monday, July 9, officers were re-elected as follows: John D. Flint, president, and William P. Hood, tressurer and manager. The Board of Directors consists of John D. Flint, Hon. Frank S. Stevens, I. T. Brownell, A. N. Lincoln, Alfred H. Hood and William P. Hood. The report of the treasurer, showing the condition of the company to be very favorable, was accepted, and it was voted to pay a dividend of 6 per cent. The sales of stoves for the past year showed a heavy falling off as compared with previous years.

Brief Mention was made in these columns July 7 of the fact that Geo. D. Hoffman, 82 Lake street, Chicago, Ill.. had been appointed general Western manager of the Craig-Reynolds Foundry Company of Dayton, Ohio, for the sale of their various furnace productions. The company now state that Mr. Hoffman is well known to the heating and ventilating engineering public as an ex-pert in that line and that he considers the series one of the most complete and extensive ever introduced, consisting as it does of over 34 sizes and seven styles, embracing furnaces for warm air, hot water and steam with all of the latest ventilating features and modern im-provements embodied therein, including the company's well-known air blast principle. The furnaces are entirely new in design and construction and complete stocks of all sizes, styles and designs will be kept on hand at the Chicago warehouse so that prompt shipments may be made at all times. The capacity of the foundry at Dayton, Ohio, is said to be over 5000 furnaces per annum, and 275 molders are constantly employed. The company further refer to the fact that the success of the Triumph King furnaces has been something phenomenal consider-ing the time they have been before the trade and that the prospects for the future are very bright. The principals of the company at Dayton are all capable and practical foundrymen with long state that the only hindrance to the

experience, and the location and arrangement of their plant at the point named are admirably adapted for the economical and rapid production of goods. A magnificent and handsomely printed cataloge of the company's produtions is now in the hands of the printers and will be ready for distribution at an early date.

THE JOHN VAN RANGE COMPANY OF Cincinnati, Ohio, lately furnished the complete kitchen apparatus, both for the pessengers' and crew's galleys for the magnificent passenger steamer "North West" of the Northern Steamship Company, which plies between Buffalo and Duluth, making weekly round trips. The kitchen equipment in the passengers' galley is on the same plan as a first-class hotel kitchen, and is one of the finest and most complete kitchen equipments that this company have ever furnished.

CHAS. NOBLE & Co. of Philadelphia, Pa., in addition to the new goods previously mentioned, are this season introducing the Liberty Oak, a new heating stove in six sizes, suitable for hard or soft coal or wood. It is of attractive appearance, with nickeled side rails and top rim, nickeled and tiled panel on upper door, nickeled latch on lower door, and is surmounted by a handsome spun urn. The body is of sheet ateel and the base and fire pot of cast iron. When required, extra linings will be furnished for the fire pot. They are furnished for the fire pot. They are also redressing their Liberty square parlor atove.

THE WORKS of the Portsmouth Stove & Range Company shut down the first week in July for the purpose of giving the employees a chance to rest during the period of the national holiday and to make some needed repairs to make some needed repairs. This short interlude is the first stop in a steady run of six months of what would have been phenomenal business even in brisk times. The works resumed on Monday last with a full complement of men.

THE FACTORY of the Quick Meal Stove Company was partially destroyed by fire early on the morning of the 8th inst., causing a less of between \$20,000 and \$25,000. The fire will not in any and \$25,000. The fire will not in any way affect the shipments of Quick Meal stoves, as the company have ware-houses in Chicago, Des Moines, St. Paul and St. Louis, which are sufficiently well stocked to meet all the requirements of the trade. The work of rebuilding the destroyed portion of the plant will be commenced immediately. Numerous letters and telegrams of sympathy were received by the Quick Meal Stove Company from the trade throughout the country, and as it is impossible for them to answer them all personally, they take this means of stating that the expressions of good will contained in all the communications are greatly appreciated by them.

HAGEY STOVE COMPANY, St. Louis, Mo., are manufacturing and placing on the market Hagey's King heater, a wood stove which is claimed to have remarkable heating capacity. The King is a wood burning stove of neat appear ance, and will keep fire, it is said, for 36 hours. The company, we understand, wish to establish agencies in every city, and say that exclusive sale will be given to such agents. The Hagey Stove Company have row in preparation a descriptive pamphlet of their King hester with handsome litho-

perfection of their plans for consolidation may be the unsettling of business by the labor troubles. As bonds are to be floated, it is possible that a longer time than until Angust 1 will be required to arrange the financial details. Otherwise there is no obstacle which cannot easily be surmounted.

#### Cribben, Sexton & Co.

of Chicago are now eccupying their new etliee and warehouse building. It oecupies 52, 54 and 56 Erie street, adjoining the main building of the stove works, with which it is connected on every floor by fire proof doors. The new building is a fine structure, six stories high, including the basement. Its dimensions are 60 x 125 feet, and it is very substantially built of brick in the style known as mill construction. basement, which is on a level with the floor of the foundry, is fitted with racks for stove repairs, as is also the basement of the acjoining old building. A hand elevator enables repairs to be easily hoisted to the repair elerk's effice on the main theor. The arrangements are of a character to enable business in this line to be handled with dispatch. The first floor, which is on a level with the front street, is used for the double purpose of offices and sample room. The offices extend along one side of the room, being separated from the sample floor by an ornamental oak railing. Near the door is the desk of William H. Cribben, around whom are grouped the clerical force. In the rear of this room are separate private offices for Henry Cribben and Col. James A. Sexton. Colonel Sexton has but recently retired from the responsible but onerous position of postmaster of Chicago, and is now back in the traces as one of the wheel horses of this establishment. The samples shown on this floor comprise coal goods.

The second floor is exclusively used as a sample room. Here are displayed wood turning stoves, oaks, &c. The platforms used on both these floors are of a new pattern. They are mounted on stout legs 12 inches high, and sre built in short sections of varying lengths, printed a parcon color with lengths, painted a maroon color with a silver stripe, and present a novel but striking appearance. Being portable, these platforms permit the sample room to be changed from time to time, so as to make the display of special lines more effective or to break the monotony of a rigid arrangement. Both sample floors are unusually light and have high ceilings. Together they provide 50 per cent. more space for samples than in the old storeroom on Lake street. The upper floors are used for storage purposes, but it is probable that a portion of this space will be taken for a wood pattern shop, tin shop, mounting oak stoves, &c.

The removal of the offices and sample room to the foundry had been contemplated for several years, but it was not until quite recently that definite action was taken. The firm of Cribben, Sexton & Co. were among the first of the stove houses to locate their sales department on Lake street and among the last to leave it. They were on that street for 20 years, and in all that time occupied the same store, being its only occupied the same store, being its only tenants until the past spring. They have already realized the great advantage of having their offices and sample room located in close proximity to the foundry. As business improves they expect to find this advantage increasing. Owing to the central location of the foundry they are still within easy walking distance of the hardware

center on Lake street.

# TRADE REPORT.

## The Iron Market.

The week has been one of exceptional dullness throughout the whole Iron and Metal industry. To this the rioting in Chicago and the general feeling of uneasiness have greatly contributed. Business men have not been inclined to consider purchases or sales while an irresponsible labor organization was trying to bulldoze the transportation interests of an important section of the country. Fortunstely, the latest news

ls reasturing.

In the Iron trade proper labor quesin the fron trate proper 1800r questions are adjusting themselves in a sat isfactory manner. The Sheet mill scale has been signed, and some of the Steel works are getting their scales into good shape. Wages in many instances are low. It may even be said that in some branches and in some localities they are unduly low. But until there is a revival in the demand and until better prices are secured there can be no betterment in this respect. Those mills which have at least regular employment are doing the best attainable for their men. The Coke strike drags along and keeps a good many furnaces idle.
The success of the Chicago furnaces in crowding the Southern producers out of their territory on Foundry Pig Iron offers some explanation of the failure to advance prices on Southern Iron in other sections. Under ordinary conditions the withdrawal of some producers, the stoppage of others and the lowering of stocks all sround ought to have stiff ened prices. But the fact is that the demand is very light all around and that the Southern producers have lost their hold on an important territory. When they are sgain running full they may be forced into active warfare in other leading markets.

Pig Iron.—Buying is on a very restricted scale in the New York market, and yet reports of low prices made by some Northern and some Virginia furnaces continue to come in. A number of founders in this vicinity have had a good deal of trouble about prompt deliveries of Iron on low priced contracts, and have been forced to cover with other parties for prompt delivery at a round advance. The watermelon acason is, as usual, interfering with deliveries of Southern Iron, the steamers taking the perishable freight and leaving the Pig Iron behind. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @

Phliadelphia advices intimate that the market for Pig Iron is very dull, according to sellers' views. Production, however, has been reduced to such an extent that asless must necessarily be in proportion, and tocrefore this dullness is natural. Nevertheless it is significant to find that there is very little Iron for sale. Sales agents say that it is hard to get deliveries, and that consumers do

not want to buy uew lots until the old orders are completed, so that new business is comparatively slow, especially as better prices are required in the majority of cases. Taking everything into account, therefore, it would seem that the market is shaping for improvement, notwithstanding its dullness and the apathy of luyers. Quotations are given about as follows for Philadelphia and equivalent points:

Standard No. 1 Foundry X Standard No. 2 Foundry X	\$12.50 @ 11.50 @	\$13,00 12 00
No. 2 Plain	10.75 @	11,00
No. 1 Soft	11.50 @	11,75
No. 2 Soft	10.75 @	-11 00

In Chicago the local manufacturers have again booked a heavy tonnage in the shape of season contracts. Other business has been tight, as shipments have been almost completely stopped by the strike. The heavy buying is now about over and a period of comparative inactivity may be expected to set in. Quotations on local Coke Iron are reduced, not because costs have been lowered, but on account of the continued competition for business by the leading producers. Southern Coke Iron is very quiet, while prices are higher, owing to advance in freight rates. Lake Superior Charcoal is in very limited demand and prices are not so strong, except on apecial brands, which are well held. Quotations are given as follows for cash:

Lake Superior Charcoal	\$14.50 @	\$15.50
Local Coke Foundry, No. 1	10.75 @	11.00
Local Coke Foundry, No. 2	10.00 @	10.50
Local Coke Foundry, No. 3	9500	10.00
Local Scotch	10.75 @	11.0)
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	ā	
Southern Coke, No. 2	@s	10.75
Southern Coke, No. 3	@	10,50
Southern, No. 1, Soft	a	10,75
Southern. No. 2, Soft	@	10,50
Tennessee Charcoal, No. 1	@	
Tennessee Charcoal, No. 2	@	
Alabama Car Wheel	17.50 @	18.00
Jackson County Silvery	15.00 @	16.00

Inquiries are a little better for Foundry Iron In the Pittsburgh district, but sales are still confined to 59 and 100 ton lots. Sales are noted of several such lots of Nos. 1 and 2 Foundry, at prices equal to about \$12, Pittsburgh, for No. 1 and \$11 for No. 2. Q totations are given as follows:

No. 1 Foundry......\$11.75 @ \$12.60, cash No. 2 Foundry.......... 10.75 @ 11.00 "

There has been rather more Southern Coke Iron available in the Cincinnati market during the week, and there were increased deliveries on old contracts, which has given an undertone of easiness to the market, but the demand was mainly for single car lots with an occasional inquiry for as much as 500 tons. The demand for No. 1 and No. 2 Soft continues in excess of the ability of the furnaces to promptly supply. Consumers in that district are melting about as much Iron as usual of late, the Iron Pipe works and the agricultural works being the largest, while the jobbing foundrles are doing comparatively little. Quotations are as follows:

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Our correspondent at Birmingham, Ala., reports that market as being in a waiting condition. Orders are refused daily and few orders are accepted beyond six months. Shipments are in carload lots and time orders are for small lots. Stocks of Pig Iron are still decreasing, in fact there are no stocks on hand unsold. No. 1 Foundry is about the only grade on hand. As high as \$10 has been asked for this grade but not accepted. No. 2 Soft commands comparatively better prices, being in great demand. Quotations range as follows: No. 1 Foundry, \$8 @ \$850; No. 2 Foundry, \$750; No. 3 Foundry, \$7; No. 1 Soft, \$750; No. 2 Soft, \$7.25.

## Metal Market.

Pig Tin.—Movement in the market for Pig Tin has been extremely slow. Jobbers and consumers have purchased in a perfunctory manner, evidently looking for the imminent passage of the tariff bill to lower prices before laying in any stock beyond such as they need for immediate requirements. Prices for small lots rule at about 20½ @ 21¢ \$\mathfrak{P}\$ it, although jobbing sales are said to have been made lately at as low as 20¢ for moderate parcels. Importations have been in excess of the broadest estimates of consumption.

Copper.—In the face of slow sales and a tame demand, the price of Ingot Copper has hardened aomewhat, consequent upon the freight embargo and moderate shipments from primary points. Retailers' prices are firmly maintained at former quotations.

Sheet Copper.—The consumptive demand continues entremely moderate and below the average, partaking of the depression which at the present time seems to prevail in all lines of sheet metal products in this section. The price for small lots of Sheet Copper from store is on a basis of 15¢, without discount.

Pig Lead.—The scarcity of ore and fuel serves not only to arouse livelier interest on the part of consumers, but prompts more reserve in the offering by smelters, thus imparting considerably more tone to the market. Prompt shipments from the West are very difficult to make, and spot stocks in hand are quite moderate. This has resulted in slightly higher prices being asked by dealers for small quantities, jobbers quoting them at  $3\frac{2}{3} \oint A 4 \oint P$  lb.

SpeIter.—The demand in this district shows no visible improvement, but offerings are not by any means large, owing to restricted production and the momentary uncertainty as to facilities for obtaining freight from the West. Consequently prices remain steady at former rates Forsmall quantities jobbers' rates are quoted at 41¢ \$\mathrew{F}\$ lb.

Antimony. - Merely routine business has been done, at 10¢ for Hallett's, and 10% for Cookson's, in small lots.

Tin Plates .- Neither spot goods nor future contracts have been purchased except in a very indifferent way, and the buying interest continues tame. Consumers appear to be holding off everything beyond the supply of absolute present needs. Orders reon everything beyond the supply of absolute present needs. Orders received are almost invariably for very limited quantities, but these in the aggregate suffice to keep jobbers fairly busy. The demand for Rooting Plates is fair. A growing demand for the better qualities is noted in New York Otherwise the market is feature-City. Otherwise the market is feature-less. Prices show little change, but the leaning is more in buyers' favor than in the other direction.

A special London cable dispatch of July 11 to The Iron Age reports on the British Tin Plate market as follows: Tin Plate prices have undergone very little change, and except from Canada inquiries are no better. The market is thus rather soft as well as dull. There are now about 273,000 boxes at Swansea stores. Prices there are as follows:

Bessemer Cokes, 14 x 20	@	10/3
Siemens Cokes, 14 x 20	. (1)	10, 6
Ternes, double box	(0)	19
Charcoals	13/ @	15/

Sheet Iron.-No very extensive demand is noted for either Black or Galvanized Sheets. The settlement of the wage scale has resulted in the starting up of a number of mills, and the rest will commence operations within a few weeks at the outside. Consequently the supply will from now on be fully adequate to the demand, and higher prices are unlikely to be had in the immediate future. Those for small lots of Black Iron from stock remain at about former quotations. Galvanized Sheets are hardly as firm as they have been during the past few weeks. Black Sheets for tinning continue in active demand.

## Chicago Report.

Scrap.-Dealers continue to quote the following list of buying prices, Chi-

oago denvery:		
Per i	net ton.	Per lb
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&c	3.00	
Old Boilers-whole (Iron)	3.00	
" (Iron)—cut in single		
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3.00	
Turnings	4.00	
Horseshoes	8.00	
Copper Bottoms		536
Copper Clips and Heavy		7 ¢
Heavy Brass		516¢
Light Brass		3 ¢
Pipe Lead		21/4
Tea Lead		2 ¢
Zinc	••••	2 0
Rubber		3%
		/2/

Anthracite.—The wholesale trade is quiet on account of the railroad strike. Carload lots of 12 net tons or over are quoted as follows:

4.0.0	Egg, Sto.		
		and Ch.	
Chicago, Ill	\$5.25	\$5.50	
Milwaukee, Wis	5.25	5.50	
Kansas City, Mo	8.45	8.70	
Council Bluffs, Iowa	8,45	8.70	
Lincoln, Neb	8.6)	8.85	
Sioux Clty, Iowa	8.45	8.70	
Aberdeen, S. Dak	8.50	8.75	
Dubuque, Iowa	6.55	6.80	
Madison, Wis	6.75	7.00	
St. Paul. Minn	7.75	8.00	

0 11 1 1	6.75	7.00
Burlington, lowa		
Des Momes, Iowa	5,20	5,45
Davenport, Iowa	6,55	65 %()
St. Joseph, Mo	8.45	S 70
Leavenworth, Kan	8,45	8.70
Omaha, Neb	5.45	4.70

Colorado Anthracite.

COLORADO FUEL & IRON COMPAN	
Denver	\$8.00 S.00
Colorado Springs	8.00
Leadville	8,00 10.00
Cheyenne, Wyo	
Missouri River	8,85

## Trade Notes.

THE SUBJECT OF COLLARS would seem at first thought to be more in the seem at first thought to be more in the line of a fashion magazine than a metal trade journal, but in their advertisement this week the Excelsior Steel Furnace Company, 38 West Monroe street, Chicago, show that Collars are strictly in our line. They advertise Square Stack Collars, Top Casing Collars, Boot Collars and Box Collars and cell the street. Collars and Box Collars and call the attention of furnacemen to the fact that these and a vast number of other fur nace fittings are made and carried in stock by that company.

E. T. BARNUM, Detroit, Mich., has been awarded the contract for the Steel Jail Cella for the new prison at Clayton, New Mexico.

THE GRISWOLD MEG. COMPANY, Erie, Pa., issue a circular bearing on the front cover an engraving of a large Kettle, within which is said to be announcements of interest to the person to whom the circular is addressed. The pamphlet calls attention to Waffle Irons, aluminum Kettles, Tea Kettles, Broilers, Cake Pans, &c., while an inset slip refers to a suit on improvements in Waf-fle Irons just decided in their favor.

A fac simile of the official ribbon issued by the authority of the World's Columbian Exposition is being distributed by E. N. Lang & Co., Portland, Maine, relative to stick, drop and wire Solder, which they exhibited at Chi-cago and for which this ribbon was awarded.

A PERMIT has been granted to the Standard Brass Company to build a frame foundry, 50 feet square, on Portland street, Cambridgeport, Mass.

THE BRIDGEPORT WOODENWARE COMPANY, Bridgeport, Ala., are erecting a large addition to their present plant.

THE W. DEWEES WOOD SHEET IRON WORKS, McKeesport, Pa., which have been closed down, will resume work on Monday.

THE SLEEMAN GAS SAVING GOVERNOR MFG. COMPANY Of New York City have been incorporated, with a capital of \$100,000. The directors named are Nathaniel Sleeman and Frederick E. Street of New Haven, Conn., and Ira Selkins, Henry Belden and E. T. Wastell of New York City.

W. P. Loughry, lately representing the Moorhead McCleane Company of Pittsburgh, at 81 John street, York, is now at 96 John street, where he is conducting a general commission business in Iron and Steel of all descriptions. Mr. Loughry's special lines are Galvanized and Black Iron and Steel Sheets, Corrugated Roofing, American Tin and Terne Plates, Sott Stamping Steel and Black Sheets for Tinning. Tinning. He describes the demand for the last named material as being very active.

## CONDITION OF THE

## Hardware Trade.

BUSINESS is practically at a standstill, on account of the strike and the consequent feeling of uncertainty which pervades the public mind. It is, however, hoped that the strike will be of short duration and that law and order will soon again prevail with the resumption of normal conditions. Until this matter is settled the trade are naturally holding back their orders awaiting developments. Notwithstanding the fact that this is the dull season, some manufacturing concerns report a very fair business during the month of June, which has continued in at least moderate volume up to the present time. There is little new in the matter of prices, which remain practically as for the past few months on most lines, the market not being at all strong, but a disposition on the part of manufacturers to refuse to go lower being evident. Collections are fair, but there is some complaint in regard to them.

Advices from Chicago.—The railroad strike has overshadowed everything else. It almost suspended business in Shelf and Heavy Hardware. The movement has been mainly local, as it was impossible for salesmen to travel through the Northwest, and traver through the Northwest, and shipment of goods for a considerable time could only be made by one line of railroad, as all others were unable to run any freight trains. The railroad situation at present is improving, and nearly all the lines are notifying ship-pers that they will again receive freight for points along their roads. It is expected that the curtailment of is expected that the curtainness of the past ten days will cause an active movement for some little time after the railroads are opened. Apprehension exists, howopened. Apprehension exists, now-ever, regarding the proposed sympa-thetic strike on the part of the general labor unions. Should this occur the situation may radically change and traffic be again completely paralyzed. Reports from the agricultural sections are of an encouraging character, crops being much heavier than had been expected until very recently, and there is every reason to hope for good business after the labor troubles are settled.

#### Notes on Prices.

Wire Nails.—The improvement in the tone of the market in the matter of prices, which was noted in our last issue, still continues and a further advance has been made. The manufacturers are now quite firmly quoting \$1.15 on carload lots at mill. The demand, however, is limited, comparatively few orders being placed. Many of the mills have stopped or are materially diminishing their production. Stocks on hand with the manufacturers are referred to as light. Quotations for small lots from store in New York are \$1.30 to \$1.35.

Advices from Chicago. - Business is at a complete standstill and manufacturers appear to be making no effort whatever to take orders, as their works are shut down and shipments have for some time been out of the question. Quotations on factory lots are, therefore, unchanged at \$1.20 to \$1.25, Chicago. Small lots from stock are still held at \$1 25.

Cut Nails.—In sympathy with the improved condition in Wire Nails a slight advance has been made in the price of Cut Nails, which are now regularly quoted at \$1 to \$1.05 for carload lots on dock in New York. The demand is only moderate. Stocks in the hands of manufacturers are not large, and with the present diminished output are not likely to be materially increased during the next few weeks. Small lots from store in New York are quoted at \$1.10 to \$1.15.

Advices from Chicago.—Almost nothing is doing by manufacturers, as they have been unable to operate their mills on account of their inability to get fuel or to make shipments to customers. Prices on factory lots are unchanged at 95 cents, Chicago, on 55-cent average. Jobbers quote small lots at \$1.15.

Barb Wire.—There is little to note in the Barb Wire market, the demand, as usual at this season, being light. Prices are without change and somewhat uneven, and represented by the following quotations for Four-Point Galvanized, delivered at the points named: Pittsburgh. \$2.05 to \$2.10; Cleveland, \$2.10 to \$2.15; Cincinnation Allentown, \$2.25 to \$2.30; Chicago or New York, \$2.25 to \$2.30.

Advices from Chicago.—Manufacturers' agents have been doing little or nothing for some time past. Factories are shut down and shipments are completely checked. No one is disposed to talk of new business. Jobbers continue to quote Galvanized in small lots from stock at \$2.35 to \$2.40, with 10 cents off for carleads.

Aluminum Juice Extractors.—In our last tssue we illustrated some new Juice Extractors which Silver & Co., 304 to 310 Hewes atreet, Brocklyn, N. Y., have recently put on the market. These goods are sold to the trade at the following net prices:

Cordage.—There has been no further advance in the price of Cordage since our last review of the market. The successive advances enable the jobbers to meet or, if desirable, undersell manufacturers' prices, and consequently the greater part of the trade is in their hands.

Glass. — Present conditions are not favorable to activity in trade, the past week having witnessed a large falling off in business, especially in the West. Manufacturers are not making concessions in prices to secure orders, not withstanding the season of the year nor the possibility of an increased importation of foreign Glass. The impression prevails that when assortments of American Window Glass are so far depleted that the foreign article will be required to make up the deficiency, advantage will be taken of the situation and the price of imported Glass will be advanced on the other side. Manufacturers' quotations on Pittsburgh Glass are reported as being 80 and 10 and 5 per cent. discount.

Old Metals.—Although the market for Old Metals generally is quiet, there has been sufficient business passing to keep prices steady. Those for Metals, other than Scrap Iron show a slight advance. The following quotations represent about the rates paid by dealers in this city for small lots:

Heavy Copper	Ib 7 🦸
Light and Tinned Copper	1 616¢
Heavy Brass	1b 5 ¢
Light Brass	1b 4 ¢
Lead	1b 3 ¢
Tea Lead	1b 28; €
Zinc	1 21 ¢
No. 1 Pewter	
No. 2 Pewter	

Wronght Scrap Iron	gross	ton	\$8.00
Heavy Cast Scrap	<b>gross</b>	ton	7.00
Stove Plate Scrap	gross	ton	3.50
Burnt Iron	gross	ton	2.50

Old Rags, Paper, &c.—A quiet market is noted, with prices practically unchanged. The following are the current rates paid in New York:

1	
No. 1 White Rags # 15 31/ @ 31/4	t
No. 2 White Rags 10 15 2 @ 2146	
Mixed Rags 1b	
Blues and 3ds	
Hard Sized White Shavings # 15 214 @ 2846	
No.1 White Book Snavings # 1b 184 @ 21,60	
No.2 White Book Shavings # Ib 118 @ 119	
Light Book Shavings # 15	
No. 1 Mixed Shavings # 15 1 @ 11/4	į
No. 2 Mixed Shavings # 15 34 @ 1	
No. 1 Printed Books 1 1b 1 @ 11/4	Ė
Ordinary Mixed Books # 15 1/4 @ 8/49	
Newspapers # 1b 2-56	
No. 1 Manila Paper # 1b % @ 1	ŧ
No. 2 Manila Paper # 15 % @ 846	t
Bogus Paper # 1b 1/2	
Common Paper \$ b %6	
Straw Chips # 15	
Binders' Clippings # 15	Ê
dute Butts 11/6	
No. 1 Jute Bagging₩ b 1	
Mixed Bagging # 1b % @ 1	t
No. 2 Bagging	t
Hemp Twine	
Manila Rope₩ 15 21/8 @ 21/4 (	t
Jute Rope # 15 1½ @ 1%	ŧ
Mixed Rope	
013 0-13.44 4 4.5-1	

Old Rubber.—A fairly active demand exists for some lines of Old Rubber. Dealers' purchasing prices, New York delivery, are as follows:

THE NEW JERSEY METAL REFINING WORKS of Elizabeth, N. J., announce that they have appointed Saunders, Fielding & Bond, 108 Fulton street, New York, as their commercial agents.

An unusually attractive advertisement is the eight-page announcement elsewhere in this issue of the Favorite Stove & Range Company, Piqua, Ohio. Four pages are printed in black and four in red, the colored ink making a handsome contrast. The goods shown are all sessonable and will appeal to the trade at large. There are six heating Stoves illustrated and two cook Stoves, while all necessary particulars are given of the constructions in the advertisement.

The announcement, made some weeks ago, that the Spanish Government, in order to increase the revenues of the island of Cuba, proposed imposing a tarlff of 25 per cent. ad valorem on all foreign goods imported into that country, caused the sending over of a number of substantial orders for galvanized iron for prompt shipment, in order to escape the expected duty. In the then condition of stocks, however, the mills were utterly unable to meet them, and the orders were generally returned. As, by later advices, it appears nearly certain that the reciprocity arrangement between Cuba and this country will be undisturbed, these large orders are unlikely to be renewed. Exporters have, however, been making some fair sized shipments of galvanized roofing sheets to Cuba within the past week or two, and the outlook for a good export business in this material is said to be favorable.

The "Daring," one of the new British torpedo boat destroyers built by Thorneycroft, in her recent speed trial

on the Thames eclipsed the high speed record held previously by the "Hornet," another of this new type of vessels. The "Daring" attained against the tide s speed of 29.268 knots, while the Yarrow built "Hornet" accomplished but little over 28 knots. The "Daring's" record is the highest made by any vessel.

THE BOOUS PLUMBER is abroad in Philadelphia, mssquerading for nefarious ends under the guise of a plumbing inspector. The police of that city have sent out notices warning heuseholders against him.

#### CONTENTS.

Editorials: PAG	
Roofing and Cornice Instruction	41
Prepayment Gas Meters	41
Rest and Recreation	41
A Little Object Lesson	41
The Letter Box—	
Loss in Pickling	42
The Electrolytic Decomposition of	
Steel Plates	42
Choked Water Bucks	42
Wants a Better System. Illustrated	43.
Wants Statistics on Brick Set Fur-	
naces	43
Press Working of Sheet MetalsIX. Ill	44
The Faultless Jewel Gas Range. Illus	45
The Tin Shop-	
Pattern for Cold Air Box. Illus	46
Heating and Plumbing-New Work and	
Contracts	49
Steam and Hot Water-	
The Niagara Radiator. Illustrated	50
Heating Notes  Trenton Pottery Strike Settled	50
Plumbing and Gas Fitting—	50
The Committees of the National Asso-	
ciation of Master Plumbers	51
Gas and Gas Fitting III. Illustrated.	51
Newark and Paterson Plumbers	53
The Lucania Water Closet. Illus	53
Obituary. Portrait	54
Traps and Vents	54
Roofing and Cornice— Instruction in Roofing and Cornice	
Work	55
Expanded Metal for Floors and Ceilings.	
Illustrated	55
Flashings	55
Tin Plates—	
Freight Discrimination Against Ameri-	
can Tin Plate	56
Scrap	56
The Retail Store— Excelsior Hammock Swing. Illus	5.77
Gas Cake Griddle. Illustrated	57 57
Searle's Pipe Vise. Illustrated	57
Stove Trade Notes—	٠,
Improvement in Oven Doors. Illus	58
Odd Plates	48
Cribben, Sexton & Co	59
Trade Report—	
The 1ron Market	60
Metal Market	60
Chicago Report	61
Trade Notes	61
Condition of the Hardware Trade  Notes on Prices	61
Metal and Miscellaneous Prices	63
Labor Exchange—	
Help Wanted	65
Situations Wanted	€5

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, July 21, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 R	eade Street.
PHILADELPHIA220 South F	ourth Street.
BOSTON146 Fra	nkiin Street.
PITTSBURGH Room 509 Hamilt	on Building.
CHICAGO,59 Dearborn Street, co	. Randolph.
CINCINNATIRooms 22-24 Picker	ng Building.
ST. LOUISBank of Comme	rce Building.
CLEVELAND	e Cuyahoga.

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Index to Rending Matter ...... Page 61.

### Reinforcing Dry Wells.

We commend to the attention of our readers the contributed article that is presented elsewhere in this issue on the reinforcement of deficient water supply in wells. In the country distriets, at this time of the year, many people who depend upon wells for their water supply suffer from drought and are compelled to either borrow from their neighbors or do without waterthe last being a very disagreeable necessity in warm weather. The artiele recounting methods of increasing the water supply of wells is interesting and has been prepared by one thoroughly competent to advise on this subject. We believe many of our readers who are called upon to do work of this kind will read with interest the suggestions therein contained, and we hope they may prove nseful to them during the present season.

Proposed Legislation Relating to Care of Steam Boilers.

There is always some danger that special legistion directed toward the suppression of existing evils may fail of its object by the introduction of ill considered and impracticable features. Particularly does this liability exist when those not skilled in framing laws attempt this difficult work. Legislation is, so to speak, one of the arts of statesmanship; and when those who are not trained in the art, however skilled they may be in other walks of seience or business, attempt to frame laws, they are quite as apt to make a mess of it as a very good lawyer might be if he attempted to make shoes, or as a skillful surgeon might be should he undertake the execution of plumbers' work. Proposed measures have been brought to the notice of the steam and hot water heating trades having for their purpose the legal regulation of the care and attendance required in | practical knowledge of the real neces-

the operation of steam boilers. The proposal seems to have been favorably regarded in some quarters, and, either in its present form or with some medifications, is likely to be brought forward again before long. It is held by the promoters of this measure that no employer ought to exact from employees caring for and operating sta-tionary engines and boilers any kind of work except such as is involved in such operation and care; and it is proposed to legally prohibit such exactions with penalties both for employers who demand and employees who submit to them. The intent is, obviously, to reach and suppress a practice which. while sometimes leading to dangerous neglect on the part of engineers in charge of steam plants, does not relieve them of responsibility for such neglect when damage to life and property re-

#### A Reprehensible Practice.

Engineers in charge of engines and boilers used for power purposes only, for heating purposes only or for both these purposes simultaneously—the latter use being constantly on the increase, as in the rapidly multiplying large office buildings of our cities-are frequently ealled upon to leave their legitimate and special work to perform repairs of machinery, to do plumbing work and even painting and earpenters' work. Derangements of the steam plant may occur during their absence, which if not at once attended to may either induce dangerous conditions or be attended with immediate destruction.
If the latter result the engineer in charge is usually blamed and not unfrequently punished, while the underlying fact is that, in most cases, his neglect is not willful, but enforced by the demands of his employer. This practice admittedly calls for some restrictive measures, and perhaps legislative enactment could be made to cover the necessary ground without introducing undesirable features. It will, however, be found no easy task to provide suitable and adequate legal remedies.

## A Possible Danger.

The history of special legislation of this kind shows that it is liable to be made at first altogether too broad and comprehensive. Subsequent reconsideration and amendment are found necessary to remove burdensome evils imposed by conditions not at first recognized and in ways not at first foreseen. As a ease pertinent to the proposition under discussion, let us cite a small shop wherein a portable engine of, say, 2 horse-power supplies all the power needed for such work as is not performed by hand. Such an engine usually stands on the shop floor, and a machinist running a lathe or some other tool near it is charged with supplying the engine with fuel and water, keeping it oiled and maintaining it in good running order. No one having a

sities of the case would insist that such an engine requires the full time of a skilled engineer. The terms of any enactment directed to the regulations of care and attendance required by steam boilers should, therefore, discriminate between such a plant and one which comprises one or more large engines for power purposes, or one which, perhaps, comprises a set of passenger elevators, dynamos for electric lighting and heating apparatus of capacity for warming the largest buildings. Thousands of factories exist where large or small steam boilers, working under low pressure, are used to begin begins liquide in table or vate. for heating liquids in tanks or vats. Discrimination would be necessary between extensive dye works, employing boilers of perhaps 100 horse-power and, say, a cheese factory only needing and, say a three and the say in the auto-natic damper and water feeder, for warming milk and supplying hot water for cleansing vats and utensils. pressure boilers for domestic heating, with gravity returns, could not be properly included in the same eategory as high pressure boilers. Many other distinctions relating to uses, pressures, situations and limitations must be regarded in order that any law, while reaching the real evil it is sought to remedy, shall not be so handicapped with impracticable and unwise provisions as to neutralize its usefulness.

## No More Cyclones Feared. \

A despondent correspondent writes us: "Well, the great railroad strike is over, and the country has again suffered heavy losses to swell the aggregate of the national profit and loss account for this year of grace. From which direction are we to expect another cyclone? It is too much to hope that our troubles are over." We beg to enter a disclaimer against this line of reasoning. All sorts of unexpected things have happened to upset business, and possibly Jove may have another thunderbolt ready forged to hurl against us, but we don't believe it. For some time the only calamity to be really feared was a national upheaval of labor. The leaders have been determined to try conclusions by the adoption of forcible measures to overcome the influences which have latterly borne so hard on those who work for wages. The effort has been made, and The leaders have been dethe most formidable undertaking of modern industrial history has com-pletely failed. The conservative policy now manifested by those leaders who have not lost their prestige by futile strikes appears to be a guarantee that we are to have no further disturbance of this kind in the immediate future. The labor crisis burst upon us suddenly, and has passed. Local issues may still have to be fought out and may still have to be folget out and settled, but they are comparatively unimportant, and such conflicts will gradually terminate. The settlement of the tariff question is also very near at hand, and the business interests of at nand, and the business interests of the country will then proceed to the great work of building up and restor-ing the sadly shattered structure of national prosperity.

# THE LETTER BOX.

## Comparative Cost of Fuels.

From S. D., London, Ontario. - Will The Metal Worker or some of its readers favor me with figures showing the comparative cost of gas, oil and coal as fuel for heating purposes, the gas to be taken at a cost of \$1 per 1000 cubic feet; the coal oil to be converted into gas at 10 cents per imperial gallon, which is one fifth more than United States measure, and coal at \$5.25 a ton? I have an idea that gas at \$1 per 1000 cubic feet will cost less than coal at \$5.25 per ton, to be used in base burners and furnaces. It is well known that gas at \$1 per 1000 cubic feet is the cheapest kind of fuel for cooking, but for heating it is a new departure in this part of the country, and I should be lad to receive suggestions and data on the subject.

Note -We hope our readers who have had experience in this line will give this correspondent some information. In the natural gas districts of the United States the opinion seems to prevail that gas at 35 or 40 cents per 1000 cubic feet would compare favorably with coal at the price mentioned by our correspondent. The use of oil for fuel in hot air furnaces and stoves has not been so general in the past as to furnish much reliable information regarding its cost, but the assertion is made by the manufacturer of a burner adapted for using such fuel that oil would cost something less than coal.

## Capacity of Gas Pipes.

From R. L. S., Fredericksburg, Va. I would like to ask what would be the difference in the amount of gas furnished if a 3-inch main is tapped with 11/2. inch pipe and run to the meter full size (11 inch) and the same main be tapped with a 1-inch pipe and run to the meter by means of a 1-inch nipple, connected with 1½ inch pipe. What I want to get at is this: Is there any advantage, after tapping a main with 1-inch nipple, in using 11 inch pipe the rest of the way?

Note. - In a general way the capacity of the pipe is determined by the area of its smallest section, in the same sense that the atrength of a chain is equal to the strength of the weakest link. The analogy, however, is not quite correct, because of the element of friction. The friction of the fluid, whether water or gas, will be increased in the smaller pips, and, therefore, in the case our correspondent cites, the 11-inch pipe connected to the 1-inch nipple will give a greater volume of gas than a 1-inch pipe connected to a 1-inch nlpple. While we say that there will be a difference in favor of the larger pipe, we do not think it would be any appreciable quantity, provided the length of run is only for a comparatively abort distance.

Friction is not only dependent upon the size of the pipe, but it is also affected by the distance the gas is carried. In the case of water carried in a pipe the element of friction is very considerable, but it may be left out of account in this gas problem. Considered in a practical light, therefore, we think our correspondent would do well to use the smaller pipe, or, in other words, make the pipe conform to the size of the nipple, as the advantage he would get with the larger pipe would not, under ordinary circumstances, be very great.

### Wants a Cheap Japan.

From BATES & LUTZ, Wilkes-Barre, Pa.—Please inform me through The Metal Worker how to make a cheap japan for use on tin.

Note. - We are inclined to think that our correspondent can obtain from man ufacturers or dealers a japan that will answer his purpose better and at less coat than he could make it. One of the workshop receipt books gives the following as a black japan for tin lanterns: Asphalt, 11 ounces; boiled linseed oil, 4 pints; burnt umber, 4 ounces. Heat until well mixed, and when cool add turpentine until of the proper conalstency, applying with a soft brush.

### Utilizing Condensation.

From OLD SUBSCRIBER, Toronto. We want a simple system of saving the water of condensation from the heating aystem of a factory carrying 10 pounds pressure and from the dry kilns and kettles carrying a higher pressure. want to discharge it into a tank so that it can be pumped out for other purpose. How can it be done?

Note. - Many of our readers doubtless can supply the information needed, and we hope to hear from them as to the methods they would advise to be used. Any one of several different makes of steam traps could be connected with the piping which carries the condensation, a trap being required on each line of pipe carrying a different pressure. The operation of these traps is such that after collecting a quantity of water they trip and discharge into the outlet leading to the tank.

## Connecting the Vent Pipe.

From H. H. L., Willimantic Conn. Please inform me through The Metal Worker which is the better way to ventilate a water closet. Should the vent pipe be connected with the lead bend or to the vent horn on the pottery? If connected with the vent horn there is liability of it cracking off should there be a severe jar on the floor, or from the | its ateerage passage rates to \$10.

strain caused by the weight of the pipe if the pipe should settle.

Note. - We shall be glad to have our practical readers give their opinion on this aubject. It is generally considered that as little space as possible in the water closet should be left unvented. Therefore when the closet is constructed with a vent horn the ventilating pipe should be attached to it, and by the use of the rubber connections adapted for this purpose the danger of breakage is very small. Many closets are made without vent horns, in which case there is no choice but to ventilate from the lead bend as suggested.

"Vulcan" in the London Ironmonger warns English metal casters and dealers in scrap metal, when purchasing from Continental dealers, to exercise considcrable care or they will run a chance of having their premises wrecked by the explosion of infernal machines. At the warehouse of George Parsons, Birmingham, metal refiner, &c., he says, a brasa bomb has been discovered, making the fifth which has come to light in the same city in three months, and, like the othera, its place of origin is the Con-tinent. This was found owing to the care which has been exercised since one of the furnacea was wrecked by a bomb which a workman had accidently thrown into it. That no one was killed or maimed is marvelous. As it was, a portion of the bomb passed through a man's coat, through an open door and ultimately found its billet at the other side of the thoroughfare.

An open letter has been addressed by Jacob Meurer of Meurer Bros. Company, Brooklyn, to Mayor Schieren of that city, protesting against the proposed action of the Bureau of Taxation to levy a personal and aupplemental tax upon manufacturing corporations whose plants are located within the city's limits. Mr. Meurer points out that this plan would embrace only 442 out of the 11,000 manufactories of Brooklyn, the number that are incorporated, and this discrimination he claims to be unjust and detrimental to the best interests of the city, as liable to drive the larger manufacturers out of its bounds.

The potteries of Wheeling, W. Va., resumed in full on Tuesday, after a seven months' shut down. The men agreed to return to work on the same basis as the Trenton potters-namely, a reduction in wages of 121 per cent. More than 1500 employees are affected. Only the East Liverpool, Ohio, potters are now holding out.

The latest move in the ateerage rate war between the transatlantic lines has been made by the directors of the White Star Line, who have cut their steerage rate from \$25 to \$10. The American Line has also followed suit in reducing

## Double Hot Air Stack and Branches

closes the oven. The dimensions of the portable ovens are 46 inches high, 36 The Excelsior Steel Furnace Com- inches wide, 36 inches deep and the pany, Chicago, put on the market a legs are 9½ inches high. The fire box is



Double Hot Air Branch.

84 inches square.

number of new sizes and lengths of double and single het air stacks and branches, and have thus increased their already extensive assortment of furnace fittings. They are now carrying over 300 different sizes and lengths of stacks and stack branches in stock, and they are in a position to supply every reasonable want of the trade. We show in the accompanying illustration a double branch consisting of one and a half joints 29 inches long. They are also made of one joint, two joints, two and a half joints, three, three and a half and four joints. The double stack is also made in a variety of lengths, giving altogether a variation in size from 193 inches to 13 feet 6 inches, which can be placed in partitions without patching or soldering.

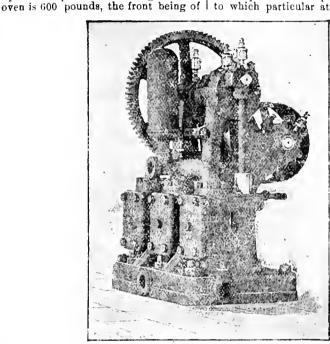
#### Millet's Patent Portable Core Oven.

The Millet Portable Oven Company, Brightwood, Msss., are offering the trade s portable core oven such as is shown in the illustration presented herewith. This firm brought out about six years ago a similar core oven, brick aet, which has been used iu many foun-dries. The present oven has been brought out to meet the needs of smaller foundries who want a portable oven. A special feature of the Millet | back of galvanized iron. As shown in

The weight of the

Triplex Power Pump.

At a recent convention of the Steam and Hot Water Fitters' Association of the United States, held at the Broadway Central Hotel, New York City, an interesting exhibit was made by the Dean Steam Pump Company, Holyoke, Mass., with New York office at 72 Cortlandt street. One pump that attracted particular attention was the Triplex power pump, shown in the accompanying illustration. This machine was recently put on the market and is designed especially for situations where steam is not available or where its use may be objectionable, and it is particularly adapted for operation by electricity. It is compact in form and every part of the machine is easily accessible for inspection or repairs. A feature to which particular attention is called



Triplex Power Pump.

cast and wrought iron and aides and

COMPANY CANASTIDA LUSTRAS

Millet's Patent Portable Core Oven.

ovens is the shelves with double doors, the shelves being in the form of quadrants so that when opened the back the bottom door, 10 inches high.

There are four doors 5 inches high and

is that it lends itself to a large and varied field of usefulness, such as boiler feeding, elevator work, either of the closed or open tank system, and can be easily arranged to run with any form of electric motor. The regular form of design is intended for belt power and is supplied with tight and loose pulleys. All the bearings of the pump are lined with phosphor bronze and supplied with glass oilers For supplying water to tanks and general distribution in hotels, large office buildings and apartment houses, it is claimed to have many advantages, notably its remarkable smoothness of motion, giving a steady flow, free from jar and shock and running practically noiseless.

Norwich, Conn., is to have a new manual training building attached to the free scademy of that town.

The world's wheat production in 1893 was estimated at 2,449,000,000 bushels. The Swiss Society of Commerce gives the following table of consumption of wheat per capita in the various countries named: England, 252 various countries named: England, 252 pounds; Italy, 310 pounds; Holland, 283 pounds; Austria, 187 pounds; Portugal, 136 pounds; Denmark, 165 pounds; Germany, 143 pounds; Norway, 66 pounds; Sweden, 66 pounds; Russia, 99 pounds; United Statea, 357 pounds; France, 705 pounds; Switzerland 405 pounds; Spain, 418 pounds. land, 405 pounds; Spain, 418 pounds; Belgium, 378 pounds; Hungary, 351 pounds.

## PLUMBING and GAS FITTING.

The Reinforcement of Deficient Water Supply in Wells.

BY G. D. HISCOX.

The water supply of the ordinary well is but little appreciated by communities enjoying the luxury of a water supply from a water works distribution; but to a vast population not only of the United States, but of all the world, the common well is the only source of dependence for good and wholesome water. Its failure from overdraft or a dry

It therefore becomes a matter of importance to those having little or no resource beyond the supply of their wells, to have at hand such information as may be applicable to the various conditions of water supply as will enable them to know what can be done to increase the tlow of water in their wells in the most economical manner.

The depth of the subterranean waterways varies to a considerable extent with the seasons, rising and falling with the seasonal variation in the rainfall. Wells that have been sunk in a wet season are very liable to become deficient or lose

the driving tube, Fig. 2, and the boring auger, Fig. 3. The driving tube may be made of galvanized sheet iron No. 16 or 18 wire gauge, 1½ to 2½ inch thick, with a band made of the same metal about 2 inches while riveted upon the outside at both ends. The length required should be found by sounding the bottom of the well with a pointed ½-inch iron rod to see if it is clear of boulders or rock for the desired distance. Four to 6 feet in length, and from 8 to 12 inches in diameter, will be found generally sufficient for this kind of tube.

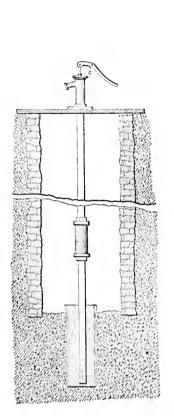


Fig. 1.-A Reinforced Well.

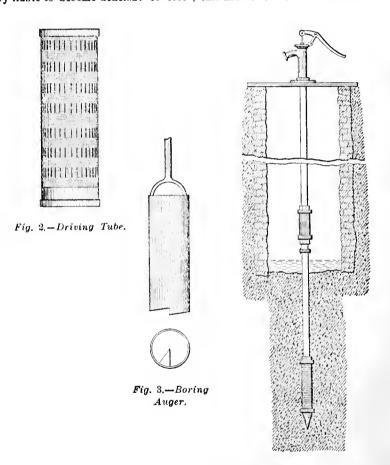


Fig. 4.—Drive Well Point Connected to Pump Suction.

THE REINFORCEMENT OF DEFICIENT WATER SUPPLY IN WELLS.

season is a source of apprehension and deprivation that invites any means of repairing the fault or reinforcing its output as worthy of serious consideration.

It has become a common complaint that by the forest clearing of the country and the incressed draft on the subterranean waterways by the increase in population, the old wells are losing their normal level and often run entirely dry during a drought.

their normal fever and order that the tirely dry during a drought.

At such times of drought or minimum rain supply, not only farm wells, but villages and towns not blessed with water works and ample summer storage, have not only to nurse their scanty supply, but often have to bring water from a distance

their water entirely during a dry season, while those sunk in a dry season seldom fail.

After a well curb has been put into place and the earth settled solidly around, it is a matter of no little difficulty to deepen the well by the old method of digging out and sinking an inside curb.

In wells having a substratum of gravel, sand or even quicksand, the most treacherous of water holding material, much can be done toward obtaining a greater depth by materials and appliances that can be furnished by any tin or sheet iron worker, or by a neighboring blacksmith. For this purpose we illustrate a reinforced well, Fig. 1;

Cutting the slots may be done by sliding the tube upon a bar of large round iron, or a sheet iron worker's horn, and with a sharp, thin cold chiscl cut through the tube in rows so arranged as not to wesken it, as shown in Fig. 2, making the slots no wider than will allow a slip of tin to enter. If a slot should be inadvertently cut too wide, it should be pressed or hammered back at the end of the horn. If convenient it may be covered with a fine brass wire gauze.

The next appliance is the auger, to bore out the sand from the inside of the pipe. This may be made of the same iron as the pipe, and from 1 to 2 inches smaller, 18 to 20 inches in length,

the boring end to have a spiral lip, as shown in Fig. 3, which may be strongly soldered into place; the forked handle to be riveted to the auger tube, as shown, and of a length suitable for building. The operation of sinking and boring out the strainer tube can be most conveniently done by the use of

holes in rows about 11 inches apart for a distance of 3 or 4 feet from the bottom, after which it may be galvanized and covered with two layers of brass wire cloth or ganze, No. 40 upon the inside or next the pipe, and No. 50 upon the outside. The gauze to be soldered at the laps and also to the pipe

the pump pipe just above the water level. As many as four 2 inch pipes have been thus connected in a well 6 feet in diameter with most satisfactory

Where there is uncertainty as to the character of the lower stratum, which may be clay, or have boulders that require to be displaced, it is better to make the reinforce of a more substantial material, say of the ordinary galvanized iron pipe with screw joints; using a little more precaution in fastening the wire gauze strongly to the perforated pipe. For large strainer pipes, say of 6 to 10 inches in diameter, machine screws may be used to fasten the gauze to the pipe, and a spot of gauze around each screw head soldered to it; also a row of screws around the bottom to keep the gauze from slipping, as shown in Fig. 5.

For large reinforcements to be made without boring out the sand, or where severe driving may be necessary, as through a clay stratum, a point or chisel may be made for the strainer, Fig. 5, by drawing or tlattening a short piece of pipe and screwing into the lower coupling. The upper end of the completed pipe should have a screw cap for receiving the blows of a hardwood ram, which may be a stick of oak timber, handled by hand or slung in a rope over

a pulley.

Where there is opportunity of using a lever or screw jack to press the pipe down, it makes the work much easier. The fulcrum may be a piece of timber placed across the well and loaded with atone.

This system of reinforcing wells has been long in use by the writer, and a variety of plans of application may be suggested by the situation of the well and the means at hand, a pole being often the means of transmitting the power for driving the pipes from the top to the bottom of a well.

There are many wells in the vicinity

of New York that have been reinforced in the manner above described, with the result of a large addition to their old supply, and here and there a dry well has been restored to usefulness.

In wells that bottom on rock, a reinforce may be made by drilling a 3 or 4 inch hole in the rock to the desired depth, and placing the pump suction and strainer within and reaching to the bottom of the drilled hole, as shown in Fig. 6. In this way not only the whole available depth of the original well may be utilized, but often a large increase of flow may be had from the fissures in the lower rock stratum.



We present herewith an illustration of a gasoline torch made by the Union Heater Supply Company of Detroit,

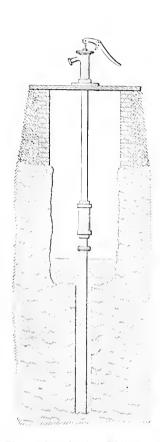


Fig. 5.-Fastening Gauze and Point to Large Strainer Pipe.

Fig. 5.-Reinforcing Well in Rock.

THE REINFORCEMENT OF DEFICIENT WATER SUPPLY IN WELLS.

two ladders, standing upon the bottom of the well, with a board across the rungs near the water, which will enable a person to operate the auger with facility and safety. The strainer tube is to be placed in position near the center of the well, and gently crowded down into the sand by the weight of the person, and rocking a little to settle it as far as possible before operating with the sand auger. Then, with the auger in hand, bore a charge from the inside of the strainer and pass the auger out of the well to be emptied.

As you bore below the bottom of the tube, continue to push it down, and at last strike the tube lightly with a wooden ram or block, keeping the atrainer tube in a vertical position. In this manner the strainer tube may be aunk until its top is nearly even with the bottom of the well and the sand bored out flush with the bottom of the strainer.

The pump pipe or suction may terminate near the bottom, as shown in the cut, Fig. 1, which will enable the full depth of the well and the reinforce to be utilized.

Where it is found desirable to sink a atrainer for a deeper and larger supply, a stronger pipe is recommended, such as a boiler tube drilled with a inch

in apots between the rows of holes, and well soldered at the top and bottom to keep it in place while in the process of ainking.

In this way a reinforce of from 10 to 20 feet in depth may be made in quicksand, which is a bar to the sinking of wells in the ordinary way. In large wells these pipes may be duplicated to the full extent of their water resources. Where drive well points can be readily procured they can be often used to



The Diamond Gasoline Torch.

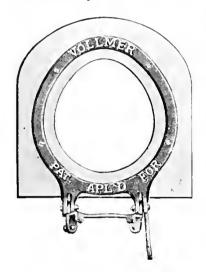
advantage, but if they are small will not allow the pump auction to be placed inside, and therefore may be connected directly with the pump, as shown in Fig. 4. If there is more water required than one pipe will furnish it may be duplicated by driving a pipe on each side of the well and connecting both to

Mich., that is meeting with a hearty reception at the hands of the trade, because of its excellent working qualities and convenience in handling. The deand convenience in handling. vice is light and small enough to be carried in the kit or pocket, and yet, it is said, possesses all the advantages of a larger tool for similar work. The tank is

made of brass and holds about 4 pint of gasoline, the top of the tank being made in such a way as to form a generating The burner is so constructed that the flame can be regulated to suit the work. The handle can be adjusted at any angle convenient to the operator, or it may be detached for close packing. The flame is very strong and not easily extinguished. In melting the joints to remove cocks or fittings from old pipe, the flame can be so manipulated as to cover every part of the work. In the hands of an expert, solder can be put on a pipe and a joint wiped in positions where it would be awkward to pour on the lead with a ladle as ordinarily done. It is furthermore very convenient for use in keeping the solder hot when wiping seams in lining tanks with lead.

## Hopper Closet Specialties.

The illustrations presented herewith show some hopper closet specialties put on the market by the Zero Valve Com-



Some Hopper Specialties .- Fig. 1.-Vollmer Closet Seat.

pany of 212 Seneca street, Buffalo, N. Y. Fig. 1 shows the Vollmer awing closet seat, adapted for use with ordi-nary Philadelphia hopper closets by the simple adjustment of two screws at the back. A malleable iron ring is fastened to the seat, reducing to a minimum liability of breakage, the iron ring serving also to prevent the wood work from warping or aplitting. This device is

being made for lifting the seat the closet is convenient and clean for use as a urinal.

Fig. 2 is a sectional view of the Zero anti-freezing closet valve, No. 1 on the cut being the supply pipe and No. 3 the flow pipe to the fixture, while No. 2 is

very durable, only one Fuller ball washer being used. The device is operated by a lever provided with a weight, which can be adjusted to suit the pressure against which it shuts. No. 1 is the supply and No. 2 the flow to the fixture. When the lever is raised

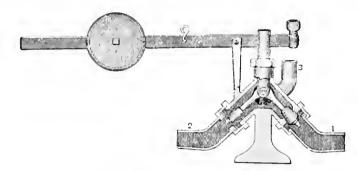


Fig. 3.- Vollmer Anti-Freezing Closet Valve.

the waste, permittingfall the water in the fixture above the valve to waste into the soil pipe to which the waste pipe runs and is connected. On raising the lever to open the valve, the piston closes the opening to the waste pipe and dropping the lever shuts off the supply and opens Complaint has sometimes the waste. been made of water hammer when the the valve shuts off the waste, leaving an unrestricted flow to flush the fixture. The weight dropping down closes against the pressure, overcoming the possibility of water hammer. When the waste is opened the water in the fixture above the valve flows through No. 3, leaving sufficient water in the valve to form a secure seal, preventing the pos-



Onondaga Bathlub.

valve closed with the pressure. This trouble, it is claimed, is entirely overcome in this device by connecting the aupply to the waste, No 2, and the waste in turn to No. 1, which is generally used for the supply. The lever is so constructed that it may be operated by either a chain or a connecting rod, a socket in one end of the lever and a

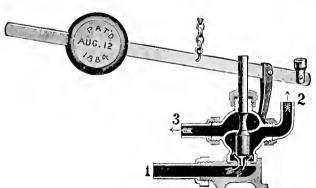


Fig. 2.—Zero Anti-Freezing Closet Valve.

claimed by the manufacturers to save time and cost as compared with the wood seat ordinarily furnished by a wood seat ordinarily furnished by a carpenter, and being composed of cherry, highly polished, is more ornamental and durable. By its use the necessity of inclosing the hopper closet in wood work is avoided, and provision link at the center being provided for the purpose.

Fig. 3 shows a sectional view of the Vollmer anti-freezing closet valve, more than 1500 of which, the makera state, have been sold in Buffalo during the past six months for use in connection with hopper closets. The valve is

sibility of sewer gas escaping through the fixture. Both of these devices are adapted for use with outside closets and can also be used with stop and waste cock if desired.

## Onondaga Bathtub.

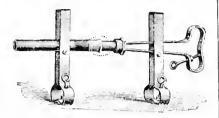
We show in the accompanying illustration a general view of the Onondaga bathtub made by the Pierce, Butler & Pierce Mfg. Company of Syracuse, N. Y. This is a 5-foot steel clad bath, decorated in light gray and gold and lined with 12-ounce planished copper. It is furnished complete with Fuller double bath cock, stand waste and overflow and supplies, all nickel plated. The rim is either natural oak or cherry. The bath, as mentioned, is 5 feet long and has a depth of  $17\frac{1}{2}$  inches and a width of 28 inches including the outside rim. The hight from the floor to side rim. the top of the rim is 231 inches. tub can also be furnished in lengths of 41 and 51 fect.

The Metal Worker acknowledges the receipt of a complimentary ticket to the first annual excursion of the Master Plumbers' Association of Newark, N. J., to Pleasure Bay, through the court-eay of Treasurer Jacobi. President Burda and Secretary Don of Newark will receive excellent assistance from President Hickman and the Paterson plumbers in making July 27 a day long

to be remembered. A clambake and refreshments are mentioned as enter-tainment.

## G. & V. Pipe Clamp.

The illustrations presented herewith ahow a plumbers' pipe clamp recently put on the market by Gardenier & Vermeulen, Paterson, N. J. The clamp consists of a piece of spring steel  $\frac{\pi}{4}$  inch wide and  $\frac{\pi}{4}$  inch thick, bent as



G. & V. Pipe Clamp.—Fig. 1.—Clamps Supporting Pipe for Soldering.

shown in Fig. 1, and provided with a set screw for accurely holding the pipe. In the base of the device a steel wood acrew having an eye in one end is provided for fastening to the floor or wall, being easily secured by the use of a hammer and bending pin. In Fig. 1 three clamps, which comprise a set, are shown. Two of the clamps are fastened to the floor, one to support a pipe which has been prepared for wiping a joint, while the second clamp secures a third, which is employed for supporting a union into which it has been inserted.

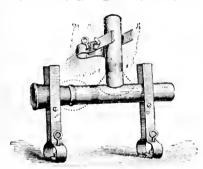


Fig. 2.—Showing Another Application of Clamps.

Fig. 2 shows two clamps fastened to the floor and supporting a soldering nipple and a piece of pipe, while still another is secured to the wall and holds an upright branch. It is claimed that this device is very light and durable, not adding much to the weight of the tool bag, while saving the time and labor of securing bricks for holding the pipe when wiping a joint. It is also claimed that the clamps hold the parts of pipe securely together, there being no danger of their parting while being worked.

#### TRAPS AND VENTS.

Louis W. GAY, "Red and White Pepper" of the "Knights of Tabasco," and dealer in plumbers' supplies at Buffalo, N. Y., informs us that "Peppers" Foster, Palmer and Duncan, accompanied by a mild plant named Smith of Buffalo, sailed for Europe last Saturday on the steamer "Farnesia."

THE PLUMBING GOODS FACTORY Of the Pfau Mfg. Company, Cincinnati, Ohio, was slightly injured by fire last week.

A NEW PLUMBING ESTABLISHMENT has been opened at 64 Foote street, New Haven, Conn., by Kelly & Coady. Mr. Kelly is from Newark and Mr. Coady was formerly with T. W. Corbett.

THE PUBLIC BUILDING COMMITTEE of the City Council of Wilwaukee, Wis., decided to recommend for passage the ordinance providing that only expert plumbers should be employed as city plumbing inspectors.

Moroan Jones, who was for a long time a plumber on Centre street, New York, died recently at his residence, 132 East Sixty-fourth street, at the age of 64 years. He was a Welshman and took a prominent part in politics, having served in the State Legislature and in Congress. He is survived by a family of adult children.

E. BROWNHILL has opened an office and showroom at 838 Broadway, New York, for the goods of the two companies whom he represents. For the Instantaneous Water Heating Company, Chicago, he is showing the Douglas and Acme instantaneous water heater set up in connection with two marble lavatories and a handsome enameled bathtub, so that the quantity of water and the time of heating can be readily shown to those who are interested. They are connected to use gas, and the gasoline heaters are also exhibited. Some of the goods are shown in planished copper, others full nickel plated and one in sectional construction to show the operation. Above this attractive display is one of the company's signs, which has a black velvet background on which are arranged nickel plated letters around a bas relief water heater connected with a bath. For the Brownhill Company, Chicago, he shows, attractively arranged, various sizes of the Perfect gas controller for automatically controlling the pressure and securing a more economical consumption of gas, whether used for lighting or cooking and heating. To demonstrate the difference in ing. To demonstrate the difference in the light and the consumption of gas under different pressures and with the Perfect controller he has an attractively painted gas holder with which by weighing when filled he can get a pressure of 20 inches, when an ordinary gas burner shows an almost entirely blue flame, which blows so that the waste of gas is readily understood, while lights that are protected by the Perfect controller are not influenced but burn steadily with a good, strong light. The vary-ing pressures in city gas mains are well known to many and the effect on gas stoves particularly for cooking has been very annoying but which can be remedied, it is said, by the use of a Perfect controller. Mr. Brownhill resides at Bergen Point, where gas is \$1.75 per 1000 feet, yet his gas bill, we understand, has been but \$6 for the past month for lighting, cooking and heating water with a Douglas instantaneous water heater for bath and laundry pur-

EVERETT, Mass., is to have a new ordinance governing the ventilation of plumbing systems.

A SECTION of 16-inch wrought iron pipe 20 feet long has been placed at the corner of the building of the Crane Company, Centre and White atreeta, New York, which has the following information: "Crane Company, factories and mills Chicago and Pittsburgh; branch houses New York, Philadelphia, Kanaas City, Omaha, St. Paul, Minneapolis, Duluth, Los Angeles, San Franciaco and Portland, Ore." At all of these branches a full line of pipe and fittings is carried as well as a line of plumbers' brass goods. The city refused to grant a permit to use the 60 foot section of 24-inch pipe exhibited at the World's Fair.

THE MONITOR IRON WORKS, New York, manufacturers of plumbers' cast iron work, soil pipe, fittings, sinks, drain traps, &c., report that they have kept their two foundries running steadily since February. They claim that the care used in making their goods makes their line popular with the trade.

Interest is being taken in improved plumbing systems at Carbondale, Pa.

Patrick J. Riordan, a well-known plumber of Worcester, Mass., was drowned while bathing at Lake Quinsigamond last Monday.

G. H. FARRELL of Westfield, Mass., has engaged the vacant store in Hamilton's Block and will establish a branch of his plumbing business at Chester.

Jos. ALLARD will carry on the tin rooting and plumbing business in Callahan's Block, Southbridge, Mass.

Tue firm of Allen & Marshall, plumbers and tinsmiths, at Greenwich, Mich., has been dissolved by mutual consent, Mr. Marshall retiring. The business will be carried on by D. K. Allen at the old stand on Greenwich avenue.

DAVID WALSH, a plumber, who has held several State offices, died last week at his residence at Hoboken, N. J., at the age of 80 years. He is survived by three sons and a daughter.

THE DETROIT RANGE BOILER COMPANY have filed articles of incorporation at Detroit, Mich., for a company with a capital stock of \$25,000, the incorporators being Thomas A. Parker, Edward W. Stoddard and Arthur M. Parker.

THE ARMSTRONG MFO. COMPANY, Bridgeport, Conn., report from their New York office some activity in their improved pipe threading and cutting machinery, five No. 2 machines having been shipped to different pipe fitters this week. They recently shipped one of their larger machines to the Pullman Palace Car Works, at Pullman, Ill.

THE MORRIS PLUMBING & SUPPLY COMPANY of Houston, Texas, have been incorporated, with a capital stock of \$25,000. Incorporators: B P. Morris, M. W. Kelley, G. E. Van Benthuysen.

THREE ARRESTS were made in Syracuse, N. Y., last week, for violation of the plumbing laws.

C. P. F. GENSLEY and C. L. TANNER have formed a partnership, with shops at 23 West Main street, Newark, O., to do all kinds of plumbing, steam, hot water and gas fitting work.

THE BOARD OF EDUCATION OF MIL-WAUKEE refused to receive bids for the plumbing work for the Emerson from any but licensed plumbers. The contract was awarded to G. R. Bridgman, who bid \$560.

F. L. Cram, representing the Perfection Cleanout Company, Haverhill, Mass., visited the New York trade in the interest of his soil pipe fittings and Cleanout specialties last week.

FRED. ADEE & Co., 90 Beekman street, New York, keeps a piece of vitreous earthenware standing with one end in an inkstand, in order to show visitors how perfectly impervious it is to the penetration of moisture. On being washed off the surface is quite clean, and by chipping it is clearly shown that the ink has not passed beyond the outside. This ware has been adopted in several of the Government contracts for water closets, urinals, lavatories and other sanitary goods.

## MOT WATER. STEAM AND

## The Winchester Heater.

I We show in the accompanying illustration a transparent view of the Winchester boiler, just put on the market by the Smith & Winchester Company of Boston, Mass. Our readers are already familiar with the name of this boiler, for it was chosen by general bal-

18 inch circle is but 561 inches, showing the great increase in the exposed aurface attained by the corrugations. It is pointed out that the corrugations present very little surface against which the coal lies, so that the dauger of chilling the fire is avoided, and there is also provided a free circulation of air at the edge of the fire, insuring thorough com-

Transparent View of Winchester Heater.

lot some months ago, the announcement being made in The Metal Worker at the On examining the cut it will be noticed that the fire pot is constructed with deep corrugations around and over the fire, thus presenting much more exthe fre, thus presenting much more ex-tended surface, backed with water, to the direct radiating heat of the fire than if it were plain. The actual circumfer-ence of the No. 12 fire pot, which has an 18 inch grate, is, we understand, 74 inches, while the circumference of an bustion and economy of fuel. Beginning on a line with the bottom of the fire door and meeting in the center over the fire are corrugations with openings between them, through which the products of combustion rise. The form of the upper sections is clearly shown in the engraving and needs no further description, the flues being staggered in the alternate horizontal sections, so that the products of combustion take a sinuous course and part very completely

CONNTING

with their heat to the water. Particular attention has been given to the cleaning facilities, and the grate is of the anti-clinker, rocking and dumping atyle, easily operated. The boiler is provided with a clinker door, which permits the thorough cleaning of the grate without dumping the fire. The Winchester is made for both steam and hot water, as well as for the combination system.

#### Early Reminiscences in Hot Water Heating.\*

BY JOHN B. FARNSWORTH.

Water Heating.\*

BY JOHN B. FARNSWORTH.

On June 15, 1880, I started, in company with a brother fitter, to see if we could learn something of the methods employed in heating by hot water. We visited in Harvard, Mass., a small two-story building of four rooms, two on each floor. The heating arrangement coosisted of a medium sized upright cylinder stove, such as was used at that time to heat large rooms. Inside of this stove was an upright water tube boiler, or annular, so called, manufactured by Jonathan Johnson of Lowell, Mass. It was made of two hollow cast iron riugs about 15 inches in diameter, one at the top and the other at the bottom. A row of linch upright pipes, about 13 inches long and 2 inches apart, extended from one of these rings to the other, leaving a space on one side of about 6 inches, so that the coal could be put in through the door. This boiler formed the fire pot, taking the place of the fire brick linings. The room on the first floor in which this stove, or combination of stove and boiler, was situated obtained the least benefit of either of the four from the fire. The three other rooms were heated with coils of 1-inch pipe.

A small expunsion tank was placed in the second story and the water, after becoming heated, passed directly to the expansion tank or separator, and from there descended through the different coils and returned to the boiler. It was entirely new to me and the results secured from a moderate amount of coal seemed quite marvelous. I was quite favorably impressed with what I had seen and learned, and coucluded that there was merit in it, which needed only to be more fully developed.

In the following August I visited Mr. Johnson, at Lowell, who was conducting a series of experiments in hot water heating hot water travel through coils in different rooms on the same floor, first passing through one, then down into the basement and up into another, seemingly without regard to what we supposed were fixed laws. This astonished me.

About this time my brother Buerkel began to i

cars by their system, which was somewhat different.

In November I went to Boston and looked over several small jobs of hot water heating, some of which were put in by my friends, Smith & Anthony of that city. In December a Leoninster gentleman called on me and said he understood I was investigating hot water heating, and wished me to heat his house if I thought I could make a success of it. I told him I was deeply interested in the subject and thought I could do what he desired, although I had not tried it. I had confidence ecough to put it into his house on condition that he need not pay for it until he was satisfied it was all right. Also, if it did not work all right and satisfactorily, I was to take it out without any expense to him.

<sup>\*</sup> Presented at the convention of the Master Steam and Hot Water Fitters' Association of the United States, held in New York, June 19-21, 1894.

I put in a Johnson boiler, 30 inches high I put in a Johnson boiler, 30 inches high by 22 inches in diameter, and pipe coils in four rooms. It was a complete success, even beyond my most sangnine expectations. About a week after the job was completed he came into my office and said he did not want it taken out, was perfectly satisfied, and paid me for the job before leaving. I was quite elated at this my first attemnt.

Later on I changed the wall coils for Later on I changed the wan cons for Laffin radiators in the chambers, and put pipes under the floors to heat the two rooms on the first floor. The boiler continued to give satisfaction for about ten years, when

rive satisfaction for about ten years, when I changed it for one of my own make, of which I will speak later. This job has always been satisfactory from first to last. The only radiators I knew of then for hot water were the Whittier, made by the H. B. Smith Company, and the Laffin, made at Westfield, Mass. I was told that hot

and was heated to 72° with 11% tons of coal

and was heated to 72° with 11′2 tons of coal per month during the winter of 1881-82. This job has given the best of satisfaction. The first boiler lasted about six years, when another of the same kind was out in its place. This one lasted only about five years, and was replaced by a No. 3 Spence. In November, 1881. I put a Johnson boiler into the American Express Company's office in Boston. The following December I went to Fall River, Mass., where I saw a job put in the Custon House and Post Office by Bartlett, Hayward & Co. of Baltimore, Md., and I noticed some points where I thought I could improve on that, even with my limited experience compared with theirs.

In February, 1882, I went to Portland, Maine, to see Kenneth McDonald. He was making and using an upright cylinder boiler made of boiler iron, with about I inch of water space between the shells.

I wanted to put this under pressure, but the Gurney people would not allow me to do it. I then put in one made by E. N. Gates of Holyoke and later of Fitchburg, and by running it under pressure I succeeded in heating the house. The Gates boiler was made of 3-inch pipe about 8 feet long, set in brick on a slight inclination, with the fire under the higher end.

I thought I could improve on the Gates boiler, so I designed and built several, using Py-inch pipe instead of 3-inch, and varying the arrangement very materially from his. There were some very good points about this, but I gave it up after a short time. I have since tried many different kinds of boilers, but have probably put in about twice as many of the Spence as of all the others put together. I find no trouble if the boilers and radiators are of sufficient capacity and properly put in. I know of but one hot water job of all I have put in that has not given good satisfaction and has not continued in use to the present time.

I have already alluded to the fact that the furnace men formerly ridiculed the idea of heating by hot water, but now nearly or

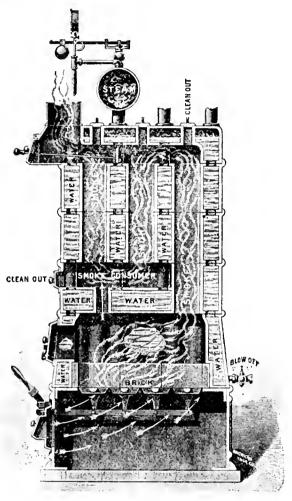
I have already alluded to the fact that the furnace men formerly ridiculed the idea of heating by hot water, but now nearly or quite all of them have a combination heater, and a hot water heater of their own, verifying the old saying that "straws show which way the wind blows"

I did not intend to bore you with so much

I did not intend to bore you with so much of my personal experience, and I fear it has not been interesting, but after beginning to revive the memories of past years I hardly knew where to stop. I have only attempted to give you some idea of what I had to contend with in the earlier days of hot water heating in eastern Massachusetts. I hope others may have had better facilities for obtaining knowledge, but what I have gained was by hard-earned experience.

#### The Boyce Heater.

We show in the accompanying illustration a sectional view of the Boyce steam, heater, manufactured by A. Boyce, 4512 Easton avenue, St. Louis, Mo. The same atyle of boiler is made for hot water heating, with the excep-Referring tion of the steam trimmings. to the illustration, the general features of the construction will be clearly understood. The base of the heater is so made that the water rises directly from the bottom to the top, and the fire course is such that after acting directly on all four sides of the fire pot section, the products of combustion come in contact with the first crown over the fire pot, then rise through six separate flues surrounded by water to the top chamber, where they spread between two crowns, and return by the same number of flues to the smoke consuming chamber, where it is said all the amoke and gases are consumed. The heated products of combustion finally rise through the six flues to the smoke flue. Upon the sections, and directly communi-cating with them through openings in its underside and top, rests the cap, the water freely passing through each acction and cap with nothing to impede its circulation. All the parts, it is pointed out, are connected by short bolts, which do not pass into the water space. Furthermore, in case of necessity any section can be removed within a very short time with little trouble. Special attention has been given to the matter of cleaning the boiler, the top section being made with two clean outs over each series of flues to admit a brush. The boiler is made in sections, and so can readily be passed through a small doorway, and can, it is asid, be set up in from two to three hours. Reference is made to the large combustion space, which enables the gases to be completely burned. The ateam heaters are made in seven sizes, covering a floor space from 22 x 33 to 33 x 41 inches; hight, 51 and 72 inches, and supplying from 350 to 1800 feet of direct radiation. The hot water heater direct radiation. is likewise made in seven sizes, and adapted to supply from 450 to 2800 feet of direct radiation.



The Boyce Heater .- Sectional View.

water heating had been tried and abandoned 50 years ago. The furnacemen laughed at the idea of heating by hot water; however, I didn't give it up, but kept right on.

In my next experiment I bought of Mr. Johnson one of his smaller heaters, 10 inches in diameter and 14 inches high, and placed it inside of an old sitting room stove I had, and attempted to heat my shop, a room containing about 15,000 cubic feet. In my first trial I got so much pipe on that I could scarcely warm the water, so I took off about half of it, and it worked fairly well, considering what a small affair it was. After a time I got a larger size boiler of the same kind, which was quite an improvement.

the same kind, which was quite an improvement.

The next April I put into a residence in Taunton, Mass., one of Mr. Johnson's boilers, in two parts. one inside the other. The outer one was 22 inches in diameter by 30 inches high, and the smaller one was 15 inches in diameter and about 24 inches high, just coming down to the top of the feed door. I used the Laffin radiators on this job, and had the water flow no through this job, and had the water flow up through a part of the radiators and down through the others. I vented the radiators with large pipes extending above the expansion tank. This house contained sevea rooms

This was surrounded by a sheet iron jacket and set on a cast iron base, arranged like a heating stove, with a direct and indirect draft. The coal was put in at the top, and the heat passed up through the boiler and down around the ontside. I afterward used several of these boilers with good results, and thought they were an improvement over the Johnson boiler. Mr. McDonald insed box coils almost exclusively for heating. I next tried a boiler made by Dr. I. Salmon of Boston, but did not like it. I do not remember it fully, but it was a small apright, with small brass tubes, more for a toy than for business.

I next tried a horizontal tubular boiler entirely filled with tubes. The heat passed first under the boiler, then back through part of the tubes, and returned to the rear through the remaining tubes. It was made similar to the Hawkins boiler of Springfield, Mass. This is still in use and works fairly well, but not up to my satisfaction. Later I tried to put in a cheap job (as I presume some of you may have done), consisting of a small boiler made by Walker & Pratt, and small radiators. During the mild weather in the fall it worked finely, but when the colder weather came on I could not heat the house. I changed this boiler for a Gurney, but could not do it with that.

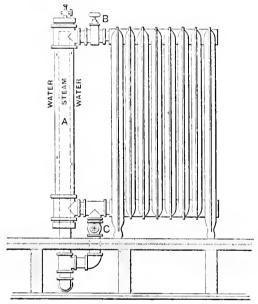
## Hot Water Heating from Steam Boiler.

From Branch Tee, Philadelphia. In The Metal Worker of May 19, 1894, "Rex" shows two systems of piping for circulating water from a steam boiler. The first shows a coil below the water line of boiler; the accord a coil on the floor above boiler. "Rex" is of the opinion that such systems should only be used to meet special requirements. While this may be true of the systems of piping he recommends, it is also true that it can be accomplished in a way that is more practical, and one which will give perfect satisfaction. I do not think it possible to maintain a given water line in the boiler with either of the systems of piping suggested by "Rex," for when the apparatus is in use the air, becoming separated from the water, will find its way to the air chamber, displacing the water, which will raise the water line in boiler and eventually stop the circulation in coil. In order to refill the apparatus, it would

radiator connections, the condensation keeping the radiators full of water. A valve, B, is provided to regulate the flow. The radiator can be operated on the one-pipe steam system by opening the emptying valve C. The use of this device enables the radiator to be used for steam or water heating. The cut shows the principle in its experimental stage, but it will soon be manufactured and placed on the market with the steam riser cast in the center of the radiator section. In a radiator 38 inches high the steam riser will maintain a temperature of 186° in a 60-foot radiator, while in a smaller radiator it is possible to maintain a higher temperature.

#### HEATING NOTES.

As a RESULT of some consideration of the subject of forming a boiler association composed of the manufacturers of steam and hot water boilers, a call has been issued for a meeting for the purpose at Taylor's Hotel, in Jersey



Hot Water Heating from Steam Bouler.

be necessary to flood the boiler, as no controlling valves are provided. As it is impossible to hold the water in the air chamber for any length of time when the water in boiler is at boiling point, both systems would be found a source of continual annoyance. The coil on same level as boiler would circulate if the flow pipe is taken direct from boiler (below water line), always descending until connected with boiler at bottom. As a connection of this kind prevents air accumulation and can be controlled by connecting a valve on lower pipe near boiler, it would be advisable to dispense with the overhead flow and air chamber.

The inclosed sketch shows a device for water heating from a steam boiler which has been used with success. While the principle of heating and circulating water with steam radiation has long been in use, this ingenious application has many advantages, requiring no expansion tank or refilling. It is also possible to maintain steam temperatures; as the radiator is closed, the same pressure indicated by gauge on boiler can be obtained at radiator; at least, the same pressure that would be obtained if an ordinary steam radiator were employed.

By referring to the sketch, it will be seen that the steam riser A is open on top and extends to the top of upper

City, N. J., near the Pennsylvania Railroad Company's ferry, at 10 o'clock next Monday morning.

Since the opening of the sample room by the J. H. McClain Company, Canton, Ohio, at 69 Centre street, New York, Manager G. R. McCallam reports an increasing interest in the Cambridge, Humber, Harvard, Yale and Sandow steam and hot water heaters. The men who install such goods are frequent visitors and the interest they show is manifested in the sales that are being made.

HART & CROUSE, Utica, N. Y., are sending out very serviceable souvenirs to the trade in the form of blotters carrying a modest announcement of their firm and names of their styles of heaters, which include hot water, steam, hot air and combination.

AT THE ANNUAL MEETING of the Adams Radiator Company, Reading, Pa., the following directors were elected; D. L. Adams, F. S. Seaman, J. S. Seaman, Wm. H. Clark and Philip Zieber.

F. RICHTER & Son, 382 to 400 Sixth street, Milwaukee, Wis., have secured the contract for heating an eight-flat building for W. A. Holbrook with one No. 3 12 section Richter boiler; also the heating of the P. H. Loftus flats with a No. 2 13 section Richter boiler.

They report quite a brisk demand from the trade in the past month for both ateam and hot water boilers. They are now placing on the market a new sectional portable boiler at a very low price, to meet the demand for a good article less expensive than a brick set boiler.

THE INTERESTS of the Standard radiators, made by the Standard Radiator Company, Buffalo. N. Y., are well taken care of by C. F. Gessert at 42 Dey atreet, New York. A number of carload shipments have been delivered as a result.

J. A. GORTON of the Gorton & Lidgerwood Company, 96 Liberty street, New York, is taking a vacation in the mountains of New York State, recuperrating his energies to take an active part in the heating trade with the Gorton steam and hot water boilers next fall.

THE UNITED STATES RADIATOR COM-PANY, Saltaburg, Pa., write us that they are now ready to fill promptly all orders for radiators that may be placed with them. They have made a series of tests of their goods, and are prepared to guarantee their radiators to do the work claimed for them.

W. H. Russell is fitting up an office and showrooms at 89 and 91 Centre street, New York, where he will manage the New York business of the Niagara Radiator Company of Buffalo, N. Y., and will soon be prepared to handle promptly all orders for radiators, either direct or indirect, which he secures. He is also representing the Detroit Lubricator Company, Detroit, Mich., steam and hot water quick working radiator valves of the angle pattern, with or without unions, and made of steam metal. The Detroit quick opening steam valve works on the piston principle, opening or closing by a push or pull. When closed by a push down it is tightly seated by a turn on a cam and is also locked.

W. HARRY DEWEY, formerly with W. F. Porter & Co., Minneapolis, is now the assistant engineer of the American Boiler Company, 94 Centre street, New York, Percival H. Seward, who also spent some time with the Minneapolis firm, being the engineer in charge.

GEO. FRANKLIN, 142 Centre street, New York, in addition to his heating business with the Mahony boilers, makes a specialty of piping hydraulic elevator plants. He now has contracts for the aewage and discharge tanks, pumps and piping for the elevators in the new Hotel Majestic, at Seventy-second street and Eighth avenue, and the McCreary building at Twenty-third street and Slxth avenue. His pipe cutting and threading plant is supplemented by a well equipped machine blacksmith shop, with several forges, a steam hammer and cutting shears. A sample of the capacity of the shop to bend pipe is shown gilded, hanging as a sign at the street entrance, composed of three different sizes of pipe welded together and ingeniously bent into a coil, a spiral, a return bend coil placed at different angles to each other, and connected in a compact space by other fantastic curves.

The McGuiness Smith Company have been incorporated at Pittsburgh, with \$100,000 capital. The company will manufacture and sell all kinds of steam, hot water and air heating and ventilating appliances. Directors: William K. McGuiness, Allegheny; Robert S. Smith, Joseph A. Langdon, William F. Hughes, Robert Munro, Pittsburgh.

## The Edgar Hydraulic Molding Machine.

The Edgar-Nelson Foundry Company of Mobile, Ala., build a molding machine in which the flask support is provided with a series of openings through which the patterns can be raised by hydraulic pressure and can be withdrawn from the mold when the pressure is removed. The head plate, flask support and pattern support are operated by hydraulic pressure. Journaled in the base plate A is a horizontal shaft, a, to which are attached the vertical rods  $a^1$ , connected at their upper ends by a cross piece carrying the head plate  $a^3$ . This shaft is operated by the hydraulic piston  $a^4$ , Fig. 1, and carries a weighted lever,  $a^5$ , Fig. 2. The main hydraulic cylinder B is mounted upon

A water pipe, E, is arranged within the cylinder D and passes through the table C into the cylinder  $c^1$ , whereby water is led into the cylinder to operate the ram  $c^2$  and elevate the plate.

Screwed upon the upper end of the cylinder  $c^1$  is a collar, M, through which the ram works. This collar is adjustable and regulates the distance the pattern plate shall drop upon the removal of pressure.

From the water supply cylinder F, shown in section in Fig. 3, water is admitted to the main cylinder, the supplemental cylinder and the horizontal cylinder for operating the head plate by means of a valve, G. The main and supply cylinders are connected by means of pipe f; the supplemental cylinder by means of a pipe, f, and the horizontal cylinder by the pipe f, and f indicates the supply pipe and f the

are held in such position. By continuing the revolution of the wheel the valve is moved to admit water to the horizontal cylinder which operates the head plate, and this movement of the wheel will be limited by the stop in the groove contacting with the rod  $\hbar^2$  bearing in the groove. The moment, however, that the head plate is raised rod  $\hbar^2$  drops ont of the groove and the revolution of the wheel may be continued, admitting water to the main cylinder, which raises the table C, flask support and pattern plate. By reversing the movement the flask support is lowered, the head plate is thrown back and the patterns withdrawn through the openings in the flask support or stripping plate.

It will be seen that by means of a single valve the patterns can be quickly and easily raised and pressed into the

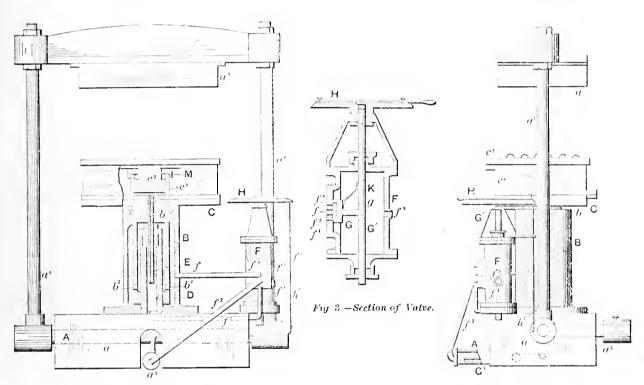


Fig. 1.—Sectional Front Elevation.

Fig. 2.—End Elevation.

## THE EDGAR HYDRAULIC MOLDING MACHINE.

the base A, and within this cylinder works a ram, b, carrying the table or platform C upon ita upper end. Upon the table is a second cylinder,  $c^1$ , carrying a ram,  $c^2$ , supporting a pattern plate, the pattern being arranged upon the upper side of the plate. A casing,  $c^4$ , surrounds the cylinder and is bolted fast to the table C. The casing is provided with a top,  $c^5$ , which aerves as the flask support, and this top is provided with a series of openings corresponding to the shape of the patterns, and through which the patterns are raised when the ram  $c^2$  and supporting plate are raised independent of the table and casing.

In order to raise the pattern a supplemental hydraulic cylinder, D, is provided upon the base A, this cylinder being arranged within the ram b, which raises the table carrying the pattern or flask support. The lower portion of the ram b, which envelops the supplemental cylinder, is formed with openings  $b^2$  to permit the entrance of water into the ram when it is desired to raise

the table C.

exhaust. It will thus be seen that there are five ports to the water cylinder, and coacting with four of them is a single valve, G, having a horizontal stem, g, which is attached to a vertically movable rod, G', working in the cylinder and provided at its upper end with a hand wheel, H, which has an annular groove in its under side, and within this groove is a stop placed at a predetermined point.

A vertical shaft, h<sup>2</sup>, is attached at its lower end to the shaft a and its upper

A vertical shaft,  $h^{\circ}$ , is attached at its lower end to the shaft a, and its upper end is adapted to rest in the groove when the head plate is thrown back out of use. A spring, K, is interposed between the rod and valve to keep the valve in place when the cylinder is

empty.

The valve is ausceptible of four diatinct movements, and by turning the wheel H one-eighth of a revolution the port governing the pipe f is opened and the supplemental cylinder to the cylinder c raises the ram c and pattern plate, thus forcing the patterns are now in position to be forced into the sand and

mold, and then by reversing the valve the patterns are withdrawn and the parts brought back to their original position.

The following shows the condition of the crops, according to the Government report, for the past five years:

	1894.	1893.	1892.	1891.	1890.
Corn	95.0	93.2	81.1	92.8	93.1
Winter wheat	83.9	77.7	89.6	96.2	76.2
Spring wheat	68.4	74.I	90.9	94.1	94.4
Oats		88.88	87.2	87.6	81.6
Rye		85.3	92.8	93.9	92.4
Barley		88.8	92.0	90.9	88.3
Potatoes		94.8	90.0	95.3	91.7
Cotton	89.6	83.7	86.9	88.6	91.4
Tobacco		93.0	92.7	91.1	88.2

Chicago's record of fire alarma for the first ten days of July is noted as being somewhat unprecedented in the history of the Fire Department of the city. During that time there were 638 calls for apparatus. The fire patrol system, too, was kept on a constant move.

The United States now number 45, President Cleveland having on Monday signed the bill admitting Utah to Statehood.

## ROOFING AND CORNICE.

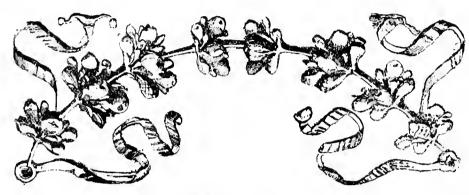
#### Grand Rapids Metal Work.

A few illustrations are herewith given of sheet metal work manufactured by the Metal Stamping & Spinning Company of Grand Rapids, Mich. This is a young establishment, which has made very rapid progress since it was started and is now turning out a great variety

left intact along one side of the opening, but turned out at right angles to form a flange. These openings are  $2 \times 1^{n_g}$  inch in size and are  $\frac{6}{2}$  inch apart. The flanges serve a twofold purpose: 1, By stiffening the lath the whole length of the sheet, and, 2, by making the lath self furring, as the flanges rest on the joists or studs. The

THE BAY STATE METAL WORKS, at Cambridge, Mass., had a fire last week that damaged their plant to the extent of \$8000, which is fully covered by insurance.

ALLEN'S CORNICE & CORRUGATINO WORKS, 422 and 424 West Randolph street, Chicago, are adding a accond



Grand Rapids Metal Work .- Fig. 1.-Garland.

of patterns in sheet metal ornamenta. The illustrations herewith given comprise a garland, Fig. 1; a capital, Fig. 2, and two panel acrolls, Figs. 3 and 4. The scrolls are made right and left—that is, the scroll atarts from a given point both in the right and left direction. These are absolutely new designs brought out by the company, which, as well as hundreds of others never before reproduced in metal for architectural ornamentation, are shown in their new catalogue.

The company have just built an addition to their factory and have put in three new atamping presses made from apecial patterna for their exclusive use, enabling them to atamp 36 inches aquare. These new presses have in each case their own steam cylinders, and are especially adapted to the finer grades of metal stamping. They make a specialty of work to order, and employ highly skilled workmen for this branch of their business.

The atcel ceilings shown in their new catalogue are made from best cold rolled and pickled ateel, and are furnished dipped in paint ready to put up, only needing a finishing coat to present a highly ornamental appearance. They will be pleased to furnish the trade with copies of their new catalogue.

#### FLASHINGS.

THE STANDARD METAL LATH COMPANY, 45 West Lake street, Chicago, have brought out a new pattern of metal lath which they are manufacturing by apecial machinery. A peculiarity of this lath is that it is made on the lines of the common wood lath, which, it is claimed, has been shown by long experience to be the best in form for a plastering aurface. The Standard metal lath preserves this form and adds the fire proof quality. It is made of sheet steel in pieces 8 feet long. Openings are punched through the steel in parallel lines, with the metal

manufacturers atate that with this lath plastering can be properly finished in two coats, thus effecting a considerable saving. The sheets are coated with a prepared oil, which immediately hardens and prevents rust and stain while the mortar is wet.

G. A. Welling, Columbus, Ohio, is sending out circulars illustrating and

atory to their main building for the purpose of carrying in atock from 3000 to 6000 feet of corrugated conductor pipe and gutters. They have found it extremely deairable to carry a large atock of goods of this character, so as to be prepared to fill orders of any size and make prompt shipment. This establishment is enjoying a good trade at present, which is due largely to the



 $Fig.\ 2.--Capital.$ 

briefly describing the Peerless cut off for rain water conductors. The advantages of the cut off are noted, and a price list of the different sizes in plain and galvanized iron is given, 3, 4, 5 and 6 inches of each being manufactured. enterprise of the owners in putting in the most improved machinery and preparing to meet every requirement of the trade with accuracy and dispatch.

Among the contracts recently taken by J. J. Colvin, 28 Chicago avenue, Chicago, can be mentioned the following: Copper and slate work for residence of Murray M. Brown, Washington Boulevard, near Garfield Park; galvanized iron, tin and slate work for flat building of James Kearns, Richmond and Division streets; copper and tile work for residence of H. Woolf, 375 Ashland Boulevard; tin and copper work for residence of Mrs. R. M. Matson, North Edgewater.

Gustav Burkhard, 942 North Clark street, Chicago, has the contract for

increased during the year from \$1,391,457,053 to \$1,563,022,233, being an increase of \$171,565,180. The total of dividends paid was \$100,929,885. The total number of passengers carried during the year was 593,560,612. Passenger mileage during the same year was 14,229,101,084. The number of tons of freight reported by the railways was 745,119,482. Ton mileage was 93,588,111,833. Passenger train mileage was 335,618,770 and freight train mileage 508,719,506.

look perfectly plain. When a ray of sunlight is reflected from them to a screen, however, a pattern appears on the screen in dusky lines. These "magic mirrors" were invented by the Japanese, who engrave a pattern on the back of the mirror and then polish the front. "The portions corresponding to the raised parts on the back stand up more rigidly to the polishing tool and therefore suffer a greater reduction, the evidence of which is afforded by the reflected beam." Mr. Kearton's mirrors



Fig. 3 .- Panel Scroll.

furnishing the copper and slate work for the new Catholic church at Lake View.

## Railway Statistics of the United States.

The sixth atatistical report of the Interstate Commerce Commission for the fiscal year ending June 30, 1893, which has just been published, shows that the total mileage of railways in the United States on June 30, 1893, was 176,461, being an increase during the year of 4897 miles. Washington State takes the first place in new construction with 556 miles, Montana showing 409 miles, Minnesota 406 miles and West Virginia 365 miles. Nineteen roads were abandoned during the year. The total length of line, including all tracks, was 230,137 miles, which embraces 10,051 miles of second track and 42,043 miles of yard track and aidings.

The total number of railway corporations in existence was 1890, being an increase of 68 during the year. Of this number 752 were independent operating The gross earnings from operations on the railways of the United States for the year was \$1,220,751,874, being an increase of \$49,344,53t over gross earnings reported in the previous year. Operating expenses during the year were \$827,921,299, being an increase of \$46-923,303 over the previous year. The final net income available for dividends was \$111,058,034, being a sum less than the corresponding amount for the previous year.

One hundred and seventy-three more railway employees were killed during the year than those killed during the previous year, the total number being 2727. The number of employees injured was 31,729, or 3463 more than the number injured in the fiscal year 1892-93. Seventy-seven less passengers were killed and two more were injured during the year than in the previous year. The numbers were: killed, 299; injured, 3229.

On June 13 the Royal Society of England gave a soirce during which a number of interesting things were ex-

are prepared in a different manner. He etches the pattern on the face of the mirror, and then polishes the mirror till the pattern is no longer visible. It will still show, however, when the ray of sunlight is reflected on a screen. Prof. C. V. Boys showed photographs of the apparatus used by him to determine, the average specific gravity of the earth, the apparatus itself being too delicate to be brought to the hall for exhibition. His method is substantially the same as that used by Cavendish, a century ago, except that the present apparatus is far more delicate and accurate. Professor Boys has been working on this problem for five years, and he finds that the specific gravity of the earth, taken as a whole, is 5.527. It is believed that this result is correct to within one-fiftieth of 1 per cent. It is certainly by far the best determination of the specific gravity of the earth that has yet been made.

The Chicago City Council has given rights in all streets to the Universal Gas Company, but insists on \$1 gas and 10 per cent. of receipts to the city.

The committee of the Board of Education of Erie, Pa., recommended a contract with the Pennsylvania Gas Company for furnishing gas for fuel for heating the following schools from October 1, 1894, to October 1, 1895, for \$3643.55, subject to discount of \$364.55 if paid quarterly in advance. The schools to be hested are Central, Nos. 1, 2, 3, 4, 5, 7, 11, 13, 16.

An International Exposition of Hygiene is to be held at Boulogne, France, from July 15 to September 15.

The Bureau of the American Republica has received from Cayenne advices of the discovery of rich gold deposits on the frontier of the disputed territory between French Guiana and Brazil.

The Marine Review says that tonnage passing through the Sault Canal this season has been very heavy, on account of the great bulk of the largest vessels of the lake fleet being engaged in carrying ore from the head of Lake Superior.



Fig. 4.-Panel Scroll.

roads, and 939 maintained operating accounts. The tendency toward some form of consolidation during the year was marked; 28 roads, representing 749 miles, were merged; 20 roads, representing 1732 miles, were reorganized, and 16 roads, representing 1469 miles, were consolidated.

The total number of employees in the service of railways on June 30, 1893, was 873,602, being an increase of 52,187. The aggregate of property properly classified as railway capital was on June 30, 1893, \$10,506,235,410, which shows railway capital equal to \$63,421 per mile of line. The amount of investment in the railway securities

hibited. J. W. Swan showed some apecimens of gold leaf prepared by him, which are only .000004 inch thick. They were made by electroplating with gold on some of the wonderfully thin sheets of copper that Mr. Swan produced in a similar manner some years ago. After the gold had been deposited the copper foil was dissolved away by perchloride of iron, leaving only the gold. The gold leaf so prepared has a thickness of from one fifth to one-tenth that of the thinnest films that can be produced by the old fashioned process of beating. J. W. Kearton exhibited some "magic mirrora" which he had made. These mirrors are metallic and

# TIN PLATES.

## Additional Tin Plate Brands.

The following names of American tin and terne plates, made specially for Hibberd, Spencer, Bartlett & Co. of Chicago, were received too late for inclusion under the head of "Dealers' Special Brands" in the American tin plate brand list published in The Metal Worker of July 7:

BRIGHT CHARCOAL PLATES.

Pawnee. (Alloway grade.)

BRIGHT COKE PLATES.

Old Hundred. (100 pounds, J. B.

grade.) R. W. B. (Full weight, J. B. grade.)

TERNE PLATES.

Iroquois. (206 to 216 pounds, machine squared.)

Niagara, (Full weight, machine squared.)

Toluca. (Full weight, stamped and

resquared.)

Messrs. Hibberd, Spencer, Bartlett & Co. inform us that these American plates have established for themselves quite a reputation in the West, and are in very active demand at the present time.

## British Tin Plates in 1893.

A special report on the tin plate industry of Great Britain during the year 1893 has just been published in the Bulletin of the British Iron Trade Association. The report contains some information and statistics, particularly in regard to the relations of the Welsh tin plate trade with the United States market, which will be found interesting and valuable as coming from a presumably reliable source.

## Decrease in British Exports.

It runs as follows: "The condition of the tin plate industry of Great Britain in 1893 is generally indicated by two facts—the first, that the exports fell from 395,580 tons to 379,233 tons, and the second that the value of the exports of 1893 fell to \$23,962,925, as compared with \$25,585,037 in the preceding year, being a drop of \$1,622,-112, or over 6 per cent. The chief item of decrease for 1893 appears in exports to the United States, and it becomes a question of considerable interest, and of not a little importance to the tin plate industry of South Wales, whether this decline was a function of the growth of the tin plate trade of that country, due to the higher rates of duty charged under the still current McKinley bill, or whether it is a result of the general depression which characterized the American trade of 1893."

#### American Output.

The report then traces the development of the American tin plate manufacturing industry, from its birth, under the fostering care of the McKinley tariff, in the third quarter of 1891—when the total production of tin and terne plates in the United States amounted to 827,000 pounds—to the end of 1893, when it assumes the output to be at the rate of about 100,000,000 to 120,000,000 pounds a year, or about one-sixth part

of the total imports. As a matter of fact, the total production of American plates in 1893 reached 123,600,000 pounds; and the present rate of production is undoubtedly considerably above that figure, for the two latter quarters of 1893 were marked by severe depression in this, as in all manufacturing industries.

## British Shipments to the United States.

The following table is given, showing the imports of tin and terne plates into the United States for ten years, to 1893, with the official customs valuation and average value per pound:

			Average
			price per
			pound at
			Politica
	Imports.	Value.	port of
	01 = 1,000	(1 = 1,000)	shipment.
			Cents.
Year.	pounds.)	dollars.)	
		18.182	3.6
1884			3.3
1885	507,154	18,665	
	****	17.654	3.1
1886	010,600		3.0
1887	572,220	16,910	
		18,979	3.0
1888	634,944	10, 10	
1889	735,779	21,222	3 0
		20,928	3.0
1890	680,060		
1001	.1,036,489	35,746	3.0
			2.9
1892	422,176	12,315	
	202 495	17,565	2.8
1602			

Commenting on this exhibit, the report remarks on the large drop in both the volume and value of the imports of tin plates into the United States as between 1891 and 1892; which it naturally attributes to the flooding of the market with these goods just prior to the imposition of the high tariff; and the consequent falling off in the demand from importers during the succeeding 12 months. Nevertheless, it is pointed out that if the aggregate imports for the three years ending 1893 are taken, they amount to an average of over 695, 600,000 pounds per annum, which is a larger importation than that recorded for any previous three years in the history of the trade.

## Outlook for Welsh Plates.

Taking this, and the fact that the importations of 1893 were only exceeded by those of four other years, into consideration, the writer of the report considers it only right to assume that the McKinley tariff had, up to the end of last year, "not greatly hurt the tin plate industry of Walea." Nor, with the prospect of a reduction of the duty by one-half, does he believe that further injury can be expected to the Welsh industry from that source. The most menacing thing appears to be the competition of American makers; and, in order to determine the question of how far this is likely to affect the Welsh makers in the future, a comparison is attempted between the cost of the production of tin plates in the two countries concerned.

#### Cost of Production.

This comparison can, however, be hardly taken as conclusive, so far as relates to this country, being based on estimates made over two years ago. Since that time the cost of production in the United States has, undoubtedly, diminished, through the introduction of labor saving machinery and the reduction in the price of black sheets. However, as a matter of curiosity, it may be noted that the estimated cost—

given in the report and obtained from Joseph D. Weeks of Pittsburgh, and the manager of one of the largest mills in Wales-of producing 161 boxes (IC 14 x 20) of tin plates, which is about the equivalent of a ton, would be \$49.14 in South Wales and \$80.62 in the United States. Thus the cost of production in the latter country, according to this estimate, would be almost \$32 per ton more than the cost on the other side of the water. This, the report calculates, would be about the amount of duty per ton under the revised tariff, which would very nearly equalize the cost of the British and American product and place them on a par in the United States market. "In other words, apart from the ocean freight, the two countries would be pretty much 'on an even keel' in respect to the price at which they could supply tin and terne plates to American consumers. Under these circumstances, it would be 'the race to the swift,' and South Wales may hope to be able to retain her hold on American markets if she can keep down the coat of produc-tion at home."

## British Production and Exports.

No reliable statistics are available to show the total consumption of tin plates in Great Britain, but it has been estimated by a writer in the Statist at 2,500,000, or about 40 per cent. of the consumption of the United States. The same writer gives the following statement of the exports and home consumption:

Exported to: United States Russia Canada Australasla France Germany	Tons. 319,100 22,700 16,150 6,150 5,500 5,480 4,100	4.2 3.0 1.1 1.0 1.0 0.8	of total ex- ports. 76.0 5.4 3.8 1.5 1.3 1.3
Holland Other countries.	40,500		9.7
Total	399,680	77.0	100 0
British coosump-		23.0	
Grand total	524,680	100.0	••••

This table, observes the report, shows the great preponderating importance of the United States as a market for our tin plates. It also shows how relatively inferior are the Australasian colonies and British North America, and suggests the probability of greatly extending our trade with those possessions in the time to come.

## A Canadian on American Tin Plates.

A prominent iron manufacturer of Montreal, quoted by Canadian Hardware, who has recently returned home from a visit to the tin plate districts of the United States, expresses himself most favorably as to the success and progress of the American tin plate manufacturing industry, as it came directly under his notice. "It is beyond cavil or dispute," said this authority, "that the business of manufacturing tin plate across the lines is in such a position as to fear no competition or revenue com-

plication. The present condition, despite the general depression of business, is fairly encouraging, and it is only another line of the iron trade in which American industry at some day in the near future bids fair to become a keen competitor in the markets of the world.

"I learned generally in the course of my tour," he continued, "that imported tin plate was used only in such cases where the domestic plate was unobtainable. In fact the latter is rapidly becoming the choice of American users. It is noteworthy, also, that the bright tin plate product of American manufacture appears to be making its way into the home markets upon its own merlts. It has outdistanced expectations, in fact, in quality, while the popular impression that it would never equal the imported plate has been dissipated. Improved machinery is being constantly devised in this as it has been before in other iron lines, and this is giving the American tin plate manufacturer an advantage over his Welsh competitor, who, for various reasons, is tied to old fashioned methods."

#### SCRAP.

"THERE HAS BEEN a remarkable growth in the demand for high grade roofing plates in New York City in the last year or two," said a large tin plate merchant of this city lately. "In almost merchant of this city lately. all the new buildings that are going up the architects stipulate that nothing but the best terne plates must be used; and very frequently the specifications call for the domestic product in preference to imported material. Consequently I have, this year, sold more high grade roofing plates than those of ordinary quality." In this respect New York contrasts curiously with the sister city of Brooklyn, which is said to absorb more damaged plates than any other place in the East. Probably the large amount of cheap and speculative building that has been carried out there lately may account for the preference for cheap material. We have been told of a damaged cargo of roofing plates which had spent some time under the waters of the East River, and which, on recovery, were nearly all disposed of in the City of Churches, finding their way on to the roofs of rows of new houses in the Eastern District. In these houses many of the tin roofs had to be ripped off and replaced with new material before a year was out.

NEW CASTLE STEEL & TIN PLATE COMPANY, New Castle, Pa., resumed full operation this week with all the six tin mills in their rolling mill.

THE SOMERTON TIN PLATE COMPANY of Brooklyn, N. Y., sigued the Amalgamated scale last week.

Among the employees of the New Castle Steel & Tin Plate Company, New Castle, Pa., are a number of musicians, and a brass band has been organized known as the "Tin Mill Band." Recently a number of the officials of the concern were tendered a serenade by their employees, which was highly enjoyed. In referring to these musicians a paper printed at New Castle states that not only has New Castle the best tin plate plant in the country, but it also has the only tin plate plant with a first-class cornet band.

THE Daily Republican of Phonixville, Pa., says that a tin plate works, to be located at the west end of that town, is being discussed, and may develop into a fact at an early date.

AT PITTSBURGH last week Col. J. Collard, assignee of the firm of James B. Scott & Co., tin plate manufacturers, who made an assignment in February last, filed a petition in court asking for an order transferring to him all the assets of that firm. He states that all the creditors, numbering over 100, have agreed to accept a compromise of their claims at 40 cents on the dollar, the claims aggregating \$199,389 35 and the amount to be distributed \$79,755.74. The order petitioned for was granted and the court will name an auditor within a short time. A plan is being considered whereby a reorganization of the firm will be brought about, with Mr. Collard as a majority owner of the stock.

The dog days have brought the usual midsummer lethargy to New York tin plate and metal houses. This season the dullness is, moreover, aggravated by tariff uncertainty and the labor troubles. Many members of the trade have embraced the opportunity to take their vacations, and the majority of jobbers' and dealers' offices present a half deserted appearance, while the unfortunates still there—both pruceipals and clerks—wear anything but a festive air. Things are as dull as they can be, and the future is to them only a matter of languid speculation.

FALCON TIN PLATE & SHEET IRON COMPANY, Niles, Ohio, started in their black sheet mill this week, on the settlement of the wage scale. The company's books contain sufficient orders for black sheets for tinning to keep their mill busy for more than two months to come. Their present capacity in this material is about 100 tons a week.

THE ALYN TIN PLATE WORKS, near Mold, North Wales, have been closed down lately, owing to a dispute with the workmen.

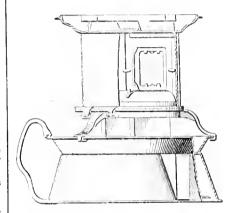
Galveston, Texas, is making strenuous efforts to secure a share of the large West Indian trade, which now passes through New York. A regular service of steamers has been lately established between the port and Cuba, Jamaica, Santo Domingo and other islands of the West Indies. Government work on the jetties in Galveston harbor is being pushed night and day; and it is said that when the bar has been deepened to 18 feet of water the Southern Pacific Railroad will seek the port.

THE FOLLOWING LETTER has been recently sent out by Bryant & Crow, a new firm name for some experienced plumbers, at 296 Sixth avenue, New York: "We regret to announce the death of our partner, William C. Mac-Donald, on June 2, 1894. The undersigned, being his surviving partners, will close up all business relating to the firm of MacDonald & Co. The undersigned have formed a partnership under the firm name of Bryant & Crow, for the business of plumbing and gas fit-ting, to be carried on in the same way and at the same place as the business of MacDonald & Co. Bryant & Crow will assume the carrying out of all uncompleted contracts of MacDonald & Co." Mr. Crow started to learn his trade at this stand 31 years ago and Mr. Bryant began a similar experience four years Both are well known in the trade, Mr. Bryant having invented several plumbing specialties. The new firm are remodeling some of the plumb-ing in the Hotel Netherlands to suit

the wishes of the new occupants and also that in two residences on Seventyeighth street.

Improvement in Lamp Stoves.

The Central Odgas Stove Company, have recently placed upon the market a lamp stove embodying some interesting features of construction, the patent covering which was granted a short time ago to H. P. Wilder of Gardner, Mass. The improvement consists in part of the way in which the cone stand and base are connected together, as well as in the method of holding the chimney in place and connecting it to the other parts. The illustration which we present herewith shows a side view of the stove, also a partial section. Among the interesting features of the stove is a special form of detachable hinge for the purpose of allowing the chimney to awing



Improvement in Lamp Stoves.

entirely back so that its edge will rest on and be supported by the table upon on and he supported by the table upon which the lamp stove is placed. The hinge is made in such a way that the chimney is maintained in pivotal connection with the base or cone stand until the chimney is swung helow the plane of the base, when it can be entirely detached if desired. The cone stand is attached to the base by springing one part into connection with the other, this being the essential feature of the improvement. In this instance the cone stand is provided with lateral and downward extensions in the form of feet which rest upon the upper edge of the base and have hooked projections which extend over and below a bead or flange on the base. By this means the stove is supported and the base, which is made of sheet metal with a flaring upper rim, is prevented from spreading when the stove is subjected to the weight of the articles to be heated. The flaring construction of the base also provides a pan like receptacle in which the wick tubes are located. By apringing the parts into connection with each other no special form of connection or holding bolt is necessary.

In a late edition of Burdett's Official Intelligencer, a London stock exchange manual, the total par value of the foreign stocks held in Great Britain is estimated at the enormous sum of \$3,819,035,000.

An exhibition is projected at Toronto Canada, for next year.

## STORE, TME RETAIL

## The Novelty Metallic Refrigerator.

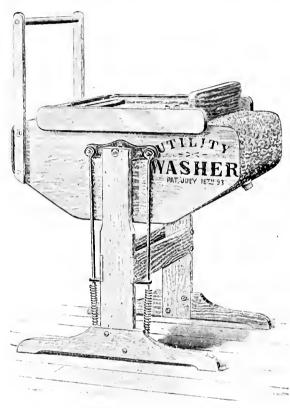
The Novelty Mfg. Company of Jackson, Mich., have put upon the market a refrigerator in whose construction no wood is used. It is herewith illuswood is used. It is herewith indistracted, Fig. 1 showing the refrigerator closed and Fig. 2 showing it open with the parts removed for cleansing. The hight of the refrigerator is 46 inches,



Fig. 1.-Novelty Metallie Refrigerator.

luded. Its diameter is 28 Its weight is less than 150 base included. inches. As no wood is used all shrinking and warping are obviated, while odora are not absorbed and retained. The ice chamber is removable and is made of galvanized steel. The grates are adjustable and revolving, thus making the rear of the shelves as accessible as the front and avoiding the contact of hands or clothing with the contents of front dishes. A galvanized tube conducts the waste from the ice chamber and supports the revolving grates. designed. The outside casing is pan-eled and decorated in an artistic man-

solid wood side pieces with the best of and decorated in an artistic man-With regard to the principles on then accurely nailed with cement coated



Utility Oscillating Washer,

which it is constructed the manufacturers state that it is "a refrigerator in every sense of the word."

## Utility Oscillating Washer.

Olds Wagon Works, Fort Wayne, Ind., are putting on the market the washer here shown. In construction nails, making, it is atated, an absolutely water tight box, which the makers guarantee not to leak. The washer is provided with compensating springs which, it is explained, make the load in the machine itself furnish nearly all the power necessary to operate it, thus greatly reducing the labor of the person greatly reducing the labor of the person using it.

### Magic Self Lighting Lamp Burner.

The accompanying cut represents a self lighting burner put on the market



The Magic Self Lighting Lamp Burner.

by the Magic Introduction Company, 321 Broadway, New York. A flat wick

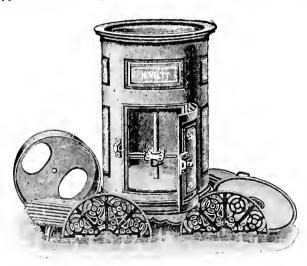


Fig. 2.—Refrigerator with Parts Removed.

All inside parta are galvanized. It is mounted on a solid roller base, hand-somely decorated. The door trim-mings are of polished brass, attractively turned upon the edges, is sealed to the

the machine is described as having the hottom, ends and top made of one piece burner made to fit different sizes of lamp founts is provided with a lighting attachment containing a roll of tape having a series of igniting pellets at intervals along its surface. One end of the tape runs up and over a roller at the top of the lighter, then down, and is attached to the axle of a turn key outside the burner. When the key is turned the tape is moved, bringing a pellet in contact with a steel point at the top of the burner, producing a flash of light, which ignites the wick. When the pellets on the tape are exhausted another tape may be introduced into the lighter. The point is made by the company that the lighting is done without the use of matches, avoiding all danger of burning carpets with match ends.

## The Geyser Coffee Pot.

The accompanying cut is a sectional view of the Geyser coffee pot, manufactured by C. A. Chapman, Clifton Springa, N. Y. A feature of the pot is the internal fountain, consisting of an inverted funnel at the bottom with a tube, which supports a dish with a sieve bottom at the top. The coffee, which is ground coarse, is placed in the



The Geyser Coffee Pot.

receptacle C, and boiling water, to the amount of coffee required, is poured over the coffee and filters through. The pot is then put on the stove, and as the water boils the fountain plays in the way indicated by the arrows in the engraving. The directions are to let it boil ten minutes. The coffee is clear and needs no egg to settle it. The fountain is adjustable, and can be raised to the top of the pot or lowered, at pleasure, according to the amount of coffee needed. The pot is made in two sizes, 5 and 8 pints.

The Chief of the Bureau of Statistics at Washington reports that the total values of cotton, breadstuffs, provisions and mineral oils exported from the United States in the month of June, 1894, and during the 12 months ending June 30, 1894, as compared with last year, were as follows:

COTTON.
1894.

1893.

	\$5,199,161	\$6,859,851
Ten months ended June 30	201,500,000	181,700,000
BREAD	STUFFS.	
June Twelve months ended	\$7,966,820	8t6,437,724
June 30	161,777,730	195,911,615
PROVI	SIONS.	
June	\$17,382,843	\$14,219,681
June 30	174,131,614	161,785,974
MINERA	L OILS.	

The June increase of \$3,000,000 in provisions was thus accompanied by the large falling off of \$8,500,000 in breadatuffs and a slight decrease in mineral oils. Wheat alone showed a decrease

of \$6,000,000. The figures for cotton are for the ten months from the beginning of the crop year, September 1, and show an excess of \$20,000,000. This, with the increase of \$12,500,000 in exports of provisions and cattle, are, however, more than balanced by the decrease in breadstuffs exports for the year of \$34,000,000.

## HEATING DO PLUMBING.

### NEW WORK AND CONTRACTS.

THE AMERICAN CONSTRUCTION & HEATING COMPANY, 69 Centre street, New York, are using five Cambridge steam heaters in some heating contracts they have secured in the uptown residence section of the city.

THE PLUMBING AND TINNING WORK on the new Hotel Chester, Practiville, Pa, was done by John Wilkinson.

Bibs will be received until July 25 by the Board of Public Works of Buffalo, N. Y., for heating and ventilating the 12-room school building to be erected in District No. 50, and to be located on the south side of Eagle street between Jefferson and Grosvenor streets.

CROOK, HORNER & Co. were awarded the contract to put in the steam heating plant and do the plumbing in the Western Female High School Building at Baltimore, Md. The contract figures for the two jobs are \$10,987 and \$2515, respectively.

THE MULLEN & DEMPSET BUILDING, now being erected at Woonsocket, R. I., is to be heated by steam.

THE SCHOOL BOARD of La Crosse, Wis., have let the contract for putting in the apparatus for steam heating the new school building to A. V. Fetter.

THE CONTRACT for placing steam heating apparatus in the High School Building at Eureka, Ill., was granted to McGregor & Co. of Bloomington. The work is to be completed by September 1. The contract price was \$1165.

The Board of Trustees of the Minnesota State Hospital for the Insane, in session at Minneapolis, awarded Chas. Wilkins & Co. of Minneapolis, Minn., the contract for plumbing the addition to the Fergus Falls Institution, at a cost of \$6444. The contract for heating the Fergus Falla Building was awarded to W. F. Porter & Co. of Minneapolis, for \$6743. Samuel I. Pope of Chicago was given the contract to heat the Rochester Asylum for \$2982. The hoard decided to heat both buildings by steam, with natural gas ventilation instead of the blower system.

W. F. RUTTER bid \$809 and secured the contract for placing McShane water closets in the Packard School, and G. B. Smart & Co. bid \$535 and secured the contract for placing the same closets in the Union School at Lawrence, Mass.

HAYES & ROURKE have the contract for the plumoing in a new house being built by S. R. Biatchley at New Haven, Conn.

NEWMAN & CRONIN have the plumblng contract for the new house for the fromas Hose Company, at New Loncon, Conn.

THE LAWRENCE PLUMBING & HEATING COMPANY, Lawrence, Kan., have the contract for heating the new residence of W. C. Winship, on South

Vermont street, by hot water. The plumbing is also to be done by this

THE BRIDGEPORT STEAM HEATING COMPANY, Bridgeport, Coup., have secured the contract for placing a Gurney hot water heating apparatus in the new residence of A. J. Hoyt at South Norwalk.

C. S. EAMES has the plumbing contract for the new residence of Jesse S. Nash at Bridgeport, Conn.

E. RUTZLER, 178 Centre street, New York, has been awarded the contract for the heating and ventilation of the German Hospital at Brooklyn, N. Y.

The School Committee of Salt Lake City, Utah, awarded to P. J. Moran the contract on his bid of \$1293 for direct-indirect radiation with natural ventilation for the four-class room building in the "annex" and the four-class room building in Poplar Grove.

E. DESORMOUX & Co., Springfield, Ohio, have been awarded the contract at \$3915 for a steam heating plant for the new Court House at Wapakoneta, Ohio.

THE J. F. PEASE FURNACE COMPANY, Syracuse, N. Y., bid \$1592 and secured the contract for the steam heating and ventilating plant for the Court House and clerk's office at Lowville, N. Y.

THE CONTRACT for putting the steam heating apparatus in the South Grammar School, at Waltham, Mass., has been awarded to Smith & Anthony of Boston. The estimated cost is \$2400.

Instructions have been given to a committee to have the heating plant remodeled in the Orthodox Church, at Lowell, Mass.

THE CONTRACT for heating, ventilating and plumbing the Northboro, Mass., High School Building has been awarded to the Hub Plumbing, Heating & Stove Company.

THE CONTRACT for placing a heating apparatus in the home of Mrs. Mary C. Wagner, at Ninth and Chestnut streets, Columbia, Pa., has been awarded to the Supplee Steam Engine Company.

THE CONTRACT for a new heater for the Bingaman and Orange Streets School Building, Reading, Pa., was awarded to the Keystone Steam Heating Company.

THE IDAHO PLUMBING & HEATING COMPANY, Boise, Idaho, have secured the contract for the steam heating and plumbing to be placed in the Idaho Soldiera' Home, now in course of erection at that place.

TRINITY CHURCH, at Lewiston, Maine, is to have a steam heating plant.

Amono the orders recently received by the S. Wilks Mfg. Company, 113 to 123 Clinton street, Chicago, can be mentioned the following: Two heaters for the residence of O. W. Norton, 4815 Lake avenue; two heaters for St. Joseph's Asylum, London, Ont.; and two heaters shipped to San Francisco, Cal.

Thomas Weathered's Sons, 242 Canal street, New York, are engaged in erecting a new greenhouse at the White House in Washington. They are also installing two No. 6 and one No. 4 boilers for the heating plant in two new greenhouses and remodeling the piping in another for Peter Hassinger of Newark, N. J. They are using a No. 3 boiler to heat the atore and flat of John Cammail in Brooklyn.

THE HAZLETON PLUMBING & STEAM HEATING COMPANY, Hazleton, Pa., secured the contracts for plumbing the residences of Thomas Powell and William Watkins of that town.

THE CONTRACT for the heating plant for the new residence of J. Frederick Maynar, n w being creeted on the corner of Geneses and Noves streets, Unite, N. Y, has been awarded to the teren Furnace Company of that city. Two Carton hot water boilers will be used, the boilers being set in battery, the same being connected so that one boiler can be used in the spring and fall and two during the winter months. The indirect system will be used almost entirely, the direct system being applied only in the back wing, in the servants' apartments The supervision of this job will be in the hands of William Campbell, an expert who has an experience of 32 years in this line of the heating business.

The Board of Regents of the Normal Schools, at Madison, Wis., will receive bids till July 24, for the steam heating apparatus for an addition to the Normal School Building, at Milwaukee, Wis., and for the addition to the school at Oshkosh.

Bids will be received by the Board of County Commissioners of Blue Earth County, at Mankato, Minn., up to July 24, for heating the new County Jail Building with ateam.

O. L. Anderson of the Lake Superior Heating Company has taken the contract for putting steam heating apparatus in the new St. Patrick's Church, Fort Howard, Wis., for \$1245.

RUFE BROS. have the contract for the heating of Harry S. Beidler's new house, at Doylestown, Pa. They have also contract for the plumbing.

The Harrisburg Steam Heat & Power Company, Harrisburg, Pa., have the contract for heating the State Treasury Building. The bids for plumbing were set aside.

THE PECK-WILLIAMSON HEATING & VENTILATING COMPANY, Cincinnati, Ohio, bid \$4800 and secured the contract for heating the school at Kenton, Ohio.

THE J. L. MOTT IRON WORKS, 311-313 Wabash avenue, Chicago, are to place Star warm air furnacts in the residence of Julius P. Neilson, Robinson and Chicago avenues, and in the apartment house of II. Beyers, 76 Aberdeen street.

THE SMITH & ANTHONY STOVE COMPANY, 217 Lake atreet, Chicago, have the contract for steam heating in the parish house of Trinity Church, Michigan avenue and Twenty-sixth street.

THE THEO. JACOBS COMPANY, 72-74 Market street, Chicago, are to install a steam heating plant in the flat building of Gustav Kurz, 718 Milwaukee ave nue.

GORDON & BLACK, Lansing, Mich., have secured the contract for heating the People's Savings Bank Building. They will use two No. 46 Ideal hot water heaters in twin connection.

The Board of Education at South Side, Ohio, have awarded the contract for the heating and ventilation of their new school building to A. Lotze's Sous & Co.

Some of the heating contracts recently closed by the Blackmore Heating Company, SS John street, New York, in which Gorton and Sunray boilers will be used are the following: The St. John's

Day Nursery, Sixty-seventh street, New York, and the residences of James Thatcher, James Rowland and Geo. M. Alcott. Brooklyn; Lewis Werle. Flatbush, L. I.; J. C. Biglin, Far Rocka way; S. H. Payne, Bay Ridge, L. I.; H. Livingston, Catskill, N. Y.; J. T. Daly, Yonkers, N. Y.; F. S. Cowles, Hasbrouck Heights, N. J.; Chas. Mulford, Jersey City, N. J., and the S. F. & E. S. Swift Company Building at Brooklyn.

JACOB G. WEBER, 244 North Clark street, Chicago, is to do the plumbing, gas fitting and sewerage in the residences of F. J. Dewes and A. Dewitt.

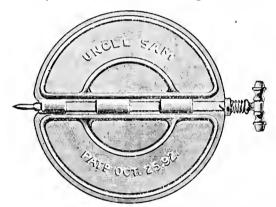
THE JOHN DAVIS COMPANY, 69-79 Michigan street, Chicago, are to furnish two tubular boilers for the Taylor Building, Wabash avenue and Washington street.

PRESIDENT E. W. HERENDEEN of the Herendeen Mfg. Company, who is traveling in Europe, writes the Chicago branch, 131 Lake street, that while in Christiania, Sweden, orders were taken for seven Faultless Furman boilers:

### Uncle Sam Dampers.

The accompanying illustrations show the Uncle Sam dampers, manufactured by Walbridge & Co., Buffslo, N. Y. Gas Heating Apparatus.

The accompanying illustrations show the Vulcan hot water heater, Fig. 1, and the Vulcan hot air furnace, Fig. 2, designed to use gas solely for fuel, whi h are being put on the market by William M. Crane & Co., 838 Broadway, New York, the well known manufacturers of gas appliances. They are constructed entirely of east iron, which, it is claimed, insures their durability, as it will stand the corrosive action of the sulphur compounds that are often found in natural gas and oceasionally in illuminating gas. The hot air heater, Fig. 2, consists of a central round brick lined flue, with the gas burner in the base. This flue extends to the top of the furnace, connecting directly into the center of the dome. The dome is cast in one piece, without joints or bolts, and has air slots through it from bottom to top that extend from its outside to its center. Ten vertical corrugated tubes connect the dome with a circular hollow Ten vertical corrugated tubes conoutlet ring that has an outlet for prod-ducts of combustion. The whole is encased in the usual galvanized casing. There is an opening, with damper, from the dome connected with the pipe to the chimney that is used only when lighting the gas to start the draft up the chimney when it has not been used for some time and prevent accumula-tion of gas in the furnace. The gas



Unele Sam Dampers .- Fig. 1, -Heating Pipe Damper.

Fig. 1 shows the heating pipe damper and Fig. 2 the smoke pipe damper, the engravings showing the differences in construction of the two. The handle of the dampers, which in construction are the same, is of enameled wood and the spring shown at the right of the illustrations will, it is said, always re-

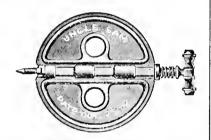


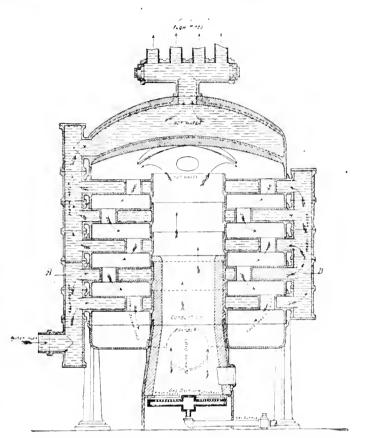
Fig. 2.—Smoke Pipe Damper.

main the same, not being affected by the heat. The stem is of malleable iron, pointed, and can be easily driven through the pipe. The damper plate is of cold rolled sheet steel, the corrugations stiffening it and preventing warping.

An abstract of the eleventh census has been printed, and is now ready for distribution.

burner is constructed so as to intimately mix the gas and air, using, it is said, the least amount of air necessary to effect the complete combustion of the gas. The combustion is completed in the hot fire brick lined chamber, and the highly heated products ascend directly to the top of the furnace, imparting little of their heat until they reach the dome. This highly heated column of gases makes a strong forced draft sufficient to draw in the air needed for the combustion, and to force the products into the open air. As intensity of draft varies nearly as the product of the hight into the difference of temperature, the 4½-foot column of hot gases at 1800° F. would, it is pointed out, give as strong a draft as a chimney 27 feet high at 300° F. The products pass through the dome between the air slots, and thence down through the corrugated side tubes, and as cooled descend to the outlet ring, and pass into a pipe directly to the open air, or to a chimney, as preferred. A large part of the squeous vapor re-sulting from the combustion of the hydrogen in the gas will be condensed in the lower part of the corrugated tubes and outlet ring, and will pass out through the small pipe to the cellar drain or to a vessel, as preferred. The amount of water produced from the combustion of various gases is about as follows per 1000 cubic feet:

Pounds, 63 high, even when the heater is doing ' London coal gas..... much leas than its rating. When a small Natural gas..... 9.2



Gas Heating Apparatus.-Fig. 1.-Vulcan Hot Water Heater,

The taking out of a large portion of the water at this point decreases the weight and volume of the products of combustion, and experience has shown that they can be discharged through a chimney at a low temperature without depositing moisture. The cooling of the products of combustion to a low temperature is assisted by the fact that the incoming cold air to be heated passes first over the outlet ring and lower ends of the corrugated tubes; thus subjecting the products of combustion to the lowest temperature in the furnace as they pass out.

The hot water heater, Fig 1, is constructed on the same general principles as the hot air heater. The ciples as the hot air heater. products of combustion ascend through a highly heated brick lined flue, impinging directly into the bottom of the dome, then descending through the sections to the outlet below lower section. The return water passes through the two lower sections to the dome, which has the supply outlet in its center. In this, as in the hot air heater, the products of combustion are subjected to the lowest temperature in the heater as they pass out. The only water joints are in the columns outside of the heater, always in sight and easily made. The sections are slike, and aize of heater can be changed by increasing or decreasing number of sections.

The manufacturers refer to the following difficulties encountered in applying gas to house heating furnaces: In using ordinary up draft furnaces the tendency of the hot gases to take a direct course up through the heater to the stack without imparting a fair share of their heat to the heater. In these heaters the atack temperature is always very amount of gas is being used in a large heater, and the products of combustion are brought below 212° F., the water it drips back into the burner, also is carried along, condensing in the stove pipe and in the chimney. The conpipe and in the chimney. densation in the chimney gives very serious results, as the moisture pene-trates through the sides of the chimney, staining the walls. There have been two methods used for getting rid of the above difficulties, and both entail a large less of efficiency.

1. Discharging products of combustion from furnace at so high a temperature that condensation will not place until the products have reached the outer air at the top of the chimney.

2. Supplying at the burner a much larger amount of air than is needed for combustion. This air being heated in its passage through the furnace will absorb the vapor and carry it to the top of the chimney provided the temperature is not too low.

While the stack temperature is lower by this method, the volume of the products of combustion is increased and no economy is effected. Sometimes air is admitted by check draft in the stove pipe close to the heater instead of at the burner, but the net result will be the same as in the latter case, as the products when they meet the incoming cold air at the check draft must be hot enough to raise the temperature of the air sufficiently to carry it to the top of the chimney. The Vulcan heater is so the chimney. The Vulcan heater is so designed as to abstract the greatest amount of heat from the products of combustion, and to discharge these products into the open air even when reduced to the lowest possible temperature, or into a chimney without trouble from moisture.

The past winter a Vulcan hot water heater using illuminating gas in New York and discharging the products of combustion at 90° F, to 120° F, into a chimney 50 feet high, with no other con-

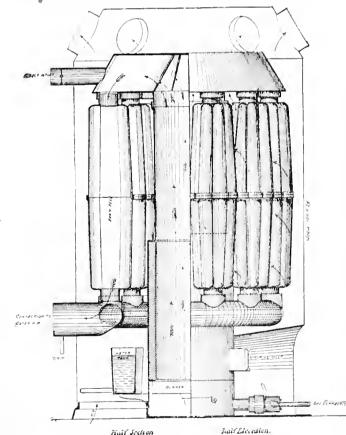


Fig. 2.—Vulcan Hot Air Furnace.

vapor produced by the combustion of the hydrogen in the gas condenses in

nection, gave no trouble from moisture, and over 25 pounds of water per 1000 the heater, even to such an extent that | feet of gas were collected at the heater.

# STOVE TRADE NOTES.

## The Local Stove Trade.

If the boom in business which is bound to come had already arrived, and all the factories, foundries, shops and mills in the country were pushed to their utmost capacity to fill orders, the local stove trade at this time of the year would still be dull. Clerks in the wholesale stores might be kept busy entering orders sent in by out of town salesmen; managers might have to postpone their vacations to study stock sheets and issue orders to their foundries to make some stoves, of which the change in times had turned an overstock into a scant supply, and they might have to make hurried contracts for attachments and trimmings found to be woefully short, but orders for stoves from city or local dealers, either for im mediate use or stock ahead would be scattering and small. The demand would be greater than it is now, but amaller than the general increase would seem to warrant.

Stove dealers in the city now place their stove orders so late, due to the changed conditions in the stove business during the last ten years, which The Metal Worker enlarged upon some months since, that the summer season is one of great dullness. crowded together in the cities must have their summer outing, clerks and saleamen spend their ten days or two weeks in the country, and workingmen their days off at Coney Island or some of the other near-by watering places or summer resorts, and but little money is expended for stoves by the masses during the summer months. Those who cannot afford their usual outing this year cannot afford to buy a stove.

So far as portable cooking ranges are concerned, their sale is so limited it might warrant the belief that nobody is buying a stove to replace an old one in use, but that they are fixing up the old ones till the iron disintegrates, and those that are sold go to newly married couples, and not many of them. It is not uncommon for small dealers to tell the stove salesmen they have not sold a stove for three, four or five weeks.

Not only is the retail business dull so far as the sale of stoves is concerned, but those who do jobbing in tin work complain of its dullness. Last year, when sales fell off, the jobbing held its own and enabled many dealers to pay their bills, but this year that, too, is dull, and the dealer who has several men employed and who usually devoted his time to superintending, must now work himself and is but seldom found

in his store, while the smaller trader, who was formerly absent from his store at work, can always be found, having little or nothing to do.

There is no remedy but to wait. It is idiocy to crowd stoves on the dealers at this time. They do not need them and will incur debts for which wholesalers will have to wait so much longer. Very little activity may be expected before September, and not then if the weather should remain warm, as dealers will delay ordering till the last moment.  $\Lambda s$  to the question of a revival of trade this fall, or the satisfactory proportions of the stove business, it may be a little early to prophesy, though speculation is always in order. Based on the revival after the panic of 20 years ago, revival has gone by for this year, as the boom of 1879 set in early in July, and prices of stoves made two jumps in that month.

To the credit of workingmen of this locality be it said that they have not added complications to the revival of business (should it be due this fall) by ruinous strikes, such as the West has suffered from, and revival will be welcome and unhampered. If pattern shops have been busy during the past months it is too early to note the results, as no new patterns are brought to the dealers' notice hereabouts as yet.

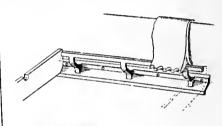
# The Co-operative Foundry Company.

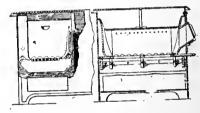
The catalogue and price-list which reaches us from the Co-operative Foundry Company of Rochester, N. Y., is an interesting publication of nearly 120 pages of letterpress, profusely illustrated and printed in three colors. The body of the matter appears in black, the titles of the stoves in rcd and the ornamental corner pieces, consisting of in lavender. oak leaves and acorns, This is the twenty eighth annual cata logue which the company have issued, and in the announcement to the trade they state that the pages of the volume 'indicate the spirit of new construction, of revision of the old and in gen eral of progress." The goods illustrated are made under the name "Red Cross" and embrace an extensive assortment, capable of meeting all reasonable re quirements. The goods are ornamented in a way to please the trade, while the constructive features are such as have established for Red Cross stoves, ranges and heaters an enviable reputation. The Red Cross square parlor heater for soft coal occupies the leading position and is shown in the catalogue in general and sectional views. The Royal Red Cross equare parlor stove, made as a double heater, has been revised to a certain extent in exterior design, the interior construction remaining the same. In addition to a line of oak, Franklin, globe, cannon, cottage parlor, box and laundry stoves, attention is given

to the Bermuda hot water heater and to the Hornet and Bermuda hot air furnaces. The list of hollow ware, prices of North Carolina mica, sundries, &c., together with a comprehensive index, complete the volume. The binding of the volume is in board covers, with side title consisting of the name, address and trade mark of the company in raised white enameled letters upon a marcon ground.

## Improved Fire Box Construction.

A form of fire box possessing features of interest to the stove trade has recently been incorporated in their goods by the Portsmouth Stove & Range Company of Portsmouth, Ohio. The arrangement of parts is such that the fire box and grate are supported in a manner that gives a downwardly ex-





Improved Fire Box Construction.—Sectional Views, Showing Arrangement of Parts.

tending passage, through which the ashes will fall without interruption into the ash pan. Another interesting feature in connection with the fire box is. the construction of the interior, the upper part of the accompanying engraving showing a detail of the supporting rails. with a section of lining in position. The upper edge of the lining, it will be noticed, is curved and forms a lip, which rests on the upper corner of the oven in such a way as to give an air space between the lining and the oven. An inspection of the lower left hand portion of the cut, which represents a cross section of the fire box, will show that the air space is continuous and in free communication with the open space beneath the grate. The air in this space becoming rarefied by the heat, ascends. and passes into the fire box through perforations in the lining, and assists in promoting a thorough combustion of the gases. The lower right hand portion of the cut represents a longitudinal section through the fire box and the parts adjacent thereto. This cut shows that the doorway in the front lining is boxed in such a way as to prevent the escape of heat from the air space and the consequent admission of cold air. The company claim that an additional heating aurface is secured by the transverse recess formed as shown beneath the doorway. The grate is journaled in cross bars, and has a longitudinal as well as a rocking motion. The side bars and end sections, as well as lower edges of the linings, are provided with a series of notches, so that when the grate is moved longitudinally the notches en-gage and crush clinkers and other incombustible matter which accumulates in the lower corners of the grate. Where a water heater is used in connection with the stove the linings are attached to one side and the ends of the fire box, while in stoves having no water heater the linings are applied to both ends and

#### The Gem City Stove Mfg. Company

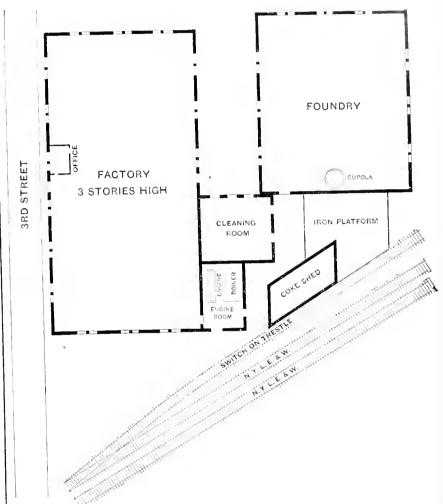
of Quincy, Ill., fazor us with a copy of the illustrated catalogue which they have just issued from the press, relating to their line of Gem stoves and ranges. The printing is in two colors upon good paper, and the binding is in flexible covers, the aide title consisting of the name of the concern and the dates 1894 95 in gilt letters upon a black ground. The opening pages are given up to an exposition of the merits of the American Gem six-hole and four-hole ranges and cook stoves, intended for burning coal, coke or wood. These are ornamented in designs of striking character, and embody those features of construction which experience and the wants of the trade have shown to be eminently desirable. The Golden Gem six-hole and four hole ranges and cook stoves are next considered, these being well made, fitted and finished, and comoine in their construction those features necessary to render them "good bakers, economical in fuel, strong and durable. The other goods include Art Gem sixhole range, made for coal or wood; National Gem six and four hole cook stoves and ranges for wood, these constituting a new line embodying attractive features of ornamentation and the latest features of construction. The Golden Gem, for wood; the American Gem, for coal or wood or coke; Art Gem, Gem and Favorite cook stoves. The heaters are represented by the Gem Starlight, a richly treated Todd stove staringht, a richly treated roud active for burning wood; the Brilliant Gem, a square parlor base burner for soft coal, hard coal or coke; the Gem Oak, a large atove intended for heating churches, school rooms and the like; the Ruby cannon and the Coronet box. Miscellaneous goods, price-list of hollow ware, directions for setting up and operating stoves, a copy of the guarantee which the makers give with each stove, together with an index, in which the various goods are classified and arranged alphabetically, constitute the closing features of the volume.

A PECULIAR ACCIDENT happened on July 12 in Chicago. Two freight trains came in collision on the track in the rear of Burdett, Smith & Co.'a warehouse, at Sixteenth and Johnson streets. The force of the collision was ao great that one of the locomotives was thrown off the track and dashed into the corner of the warehouse, tearing out a good portion of the wall. While considerable damage was done to the building it was confined to a comparatively amall part of it. Two lives were lost in the collision.

# Works of the Hood Furnace & Supply Company.

The engraving which we present herewith represents a ground plan of the new plant occupied by the Hood Furnace & Supply Company of Corning, N. Y. It is some 11 years ago that the president of the concern, C. S. Hood, commenced the manufacture of furnaces in a room 20 x 20 feet, equipped with one drill and an emery wheel operated by water motor. As the merits of his furnaces became known their sale increased, and from time to time Mr. Hood tound it necessary to provide additional manufacturing facilities by removing to

dumped under the trestle within 16 feet of the boiler. The steel for the manufacture of the Chearful Home furnaces is taken by carload lots on the second floor of the main building where it is transformed into heaters ready for shipment. While the plant is not a large one the company feel that it is second to none in its arrangement for the purpose of manufacturing warm air heaters exclusively. The president, C. S. Hood, is the inventor of the Chearful Home and the Cottage Home line of heaters known as the Hood furnaces, and he is also inventor of most of the machinery in use in the company's works. In 1892 C. S. Hood & Co. were organized into astock



Ground Plan of the Works of the Hood Furnace & Supply Company, at Corning, N. Y.

more commodious quarters. Three times changes have been made, bringing the company to their present quarters at the corner of East Third street and the tracks of the New York, Lake Erie & Western Railroad. The main building is three stories in hight and has nearly 20,000 feet of floor space. It is equipped with steam power riveting hammer, forming rolls, a self spacing and punching machine, drills and grinding machines. There is also a tin shop equipped with the latest improved tools and an elevator for the easy handling of stock. The engine and boiler room adjoins the factory building, as may be seen from the diagram. The foundry, which is so located as to receive light on all sides and to be readily accessible to the railroad switch, has a capacity of 4 tons per day. The switch, which is on a trestle, delivers all material, so that coke and iron are unloaded on a level with the cupola floor. Soft coal can be

company with C. S. Hood as president, W. W. Adams vice president, and James C. Hood secretary and treasurer.

#### The Abram Cox Stove Company

of Philadelphia, Chicago, New York and Boston have issued a 48-page pamphlet, supplementary to their catalogue of 1893-94. It is distributed for the purpose of showing the new goods the company have brought out, and within its covers well executed engravings of artistically decorated ranges and heaters are given. Among the new goods may be meutioned the Valley Novelty, for hard coal, soft coal, coke or wood, a six-hole range, richly embellished, and embodying the latest features. The Valley Novelty A is a member of this same class, and possesses features which cannot fail to command the attention of the trade. These two lines

constitute an extensive assortment, and embrace practically every desirable form known to the trade. The makers state that there are no less than 288 separate and distinct ranges, half of which are made left hand and half right hand. These productions are also made with horizontal boiler and high closet, the decorative features producing very attractive effects. The Marvel is the name of a new heater which the company have brought out in three sizes, made with cast iron fire pot and both direct draft and revertible flue. various forms in which the heater is offered the trade by the manufacturers are designated as "direct draft circu lator, direct draft double heater, full revertible flue circulator and full revertible flue double heater." The Pole is another addition to the company's assortment, this being a full revertible flue surface burner with nickel ornamentation.

### Welcome Stoves and Ranges.

We are indebted to the Syracuse Stove Works of Syracuse, N. Y., for a copy of an exceedingly neat and attractive catalogue which they have just issued, illustrating and describing their lines of Welcome stoves and ranges. In the make up of the volume the major portion of the matter is printed in black, with the name of the stove and the date of the pattern in red. In the upper outer corner of each page is an orna-mental piece in light green, carrying a fac-simile of the company's trade mark. The binding is in light colored covers forming a pleasant departure from the dark and somber treatment employed in connection with many trade publica-tions. To the third page of the cover is attached a pocket in which we find a trade price-list of Welcome stoves and ranges, agricultural furnaces and dealers' supplies. The goods illustrated in the catalogue are shown to excellent advantage and the descriptive particulars are such as to enable the trade to understand the salient features of each stove, range and heater. In connection with the cuts are given oven measure-ments, lengths of fire box for wood and the various numbers in which the goods are made. The manufacturers point out as an evidence of the increasing popularity of these goods that their facilities are increasing year by year. The company are also interested in the sale of Kernan warm air furnaces and a portion of the catalogue is devoted to illustrations of these goods. Other features to which attention is invited consist of repairs for stoves made by the predecessors of the company, illustrated description of the improved lock frame stove truck and an alphabetically arranged index.

### The Bridge & Beach Mfg. Company

of St. Louis, Mo., have just issued an attractive catalogue and price-list of Superior stoves and ranges. It is a volume of 112 pages, tastefully printed on a good quality of paper and bound in comparatively plain covers, but with rich effects. The opening pages are given up to illustrations of the company's works at 501-503 South Main street, St. Louis, their California agency at 13 and 15 Bluxome street, San Franciseo, their Oregon agency at Portland and their agency at Los Angeles, Cal. Remsrks relative to stove repairs, breakages and overcharges and a telegraphic code with index are other features of

interest and value. Nearly 40 pages are devoted to Superior cook stoves and ranges embodying the modern features and embellished in a style to command the attention of the trade. These are made for both coal and wood and in sufficient variety to meet all requirements of domestic use. In connection with each cut of a stove are given the sizes in which it is made, the number of boiler holes, weight, price and code word. The heating stoves occupy the second half and include the Superior air tight parlor stove for coal or wood and with single or double fire pot; the Superior oak, made in four sizes; the Elmo, a hard coal base burner; the Lotus, a direct draft soft coal heater; the Keystone and Sligo cannon stoves; an attractive all east Franklin made for burning wood and two sizes for burning coal; the Superior Todd, together with a line of box, laundry and cottage parlor stoves. Attention is also given to high closets, detachable reservoirs, water coils, tin trimmings, price-lists, directions for ordering repairs, &c. A valuable feature of the catalogue are skeleton cuts of a coal cook stove, a coal range, a wood cook and a wood range, the various plates being numbered and each number referring to an explanatory table presented in connection therewith. By this means the dealer can so state his requirements in the way of repairs as to reduce mistakes to a minimum.

# Bussey & McLeod Stove Company

of Troy, N. Y., have issued their annual illustrated catalogue and price-list of Gold Coin stoves and ranges for the season of 1894. In general style and make up it is in keeping with publications of previous years, and its 160 pages set forth in comprehensive style the merits of the goods named. whole page is devoted to a bird's-eye view of the Oakwood foundry of the company, at Troy, while another gives a bird's-eye view of the foundry of the Chicago Stove Works, which are the Western makers of Gold Coin atoves. In pursuance of the company's policy they present this year a complete new line of Gold Coin stoves, embracing a six-hole range, a four hole range, a new wood and coal cook, a new square oak, a new surface burner, a new hall stove and a new E shelf. The Gold Coin stoves are well known to the trade, and have established a reputation at home and abroad. In connection with each cut the dealer will find the various sizes in which the stove is offered, oven dimensions, prices and code words for ordering by wire. The letterpress in every case is ample, and the arrangement of the matter such as to prove valuable to the dealer. The new Gold Coin surface burner is mounted with Russia iron, and the various sizes have respectively fire pots 13, 14 and 16 inches in diameter. sizes are intended for heating halls and large rooms. A valuable feature of the catalogue, and one which is now found in publications of a number of leading stove manufacturers, is sectional views of stoves and ranges, each plate being numbered and referring to an explanatory table printed in connection therewith. By means of the cuts and tables the dealer is enabled to order repairs in the full assurance that the manufacturer will understand exactly what he means and thus save many of the annoyances and delays which have characterized

#### ODD PLATES.

A SHARP CONTROVERSY in regard to the trade in gas stoves is raging in England at the present time between the gas companies and the hardware trade. The former lay claim to the business as their "birthright." Ninety-five thousand gas stoves are now leased out in London by two companies alone.

E. O. & W. K. STAFFORD, 7 West Fourteenth street, New York, Eastern agents for the Milwaukee Gas Stove Company and for the Mosely Folding Bath Tub Company, have found that the Perfection gas ranges and the folding bath increase in popularity as their merits are known. They are also agents for Barler's oil heaters, and expect good sales in the fall. They sell the gas tubing made by Nicholls & Granger in large quantities.

Gas, says the Plumber and Decorator, is very largely used for cooking purposes not only in London but in the country towns. At Maidstone, for instance, at least 28 per cent. of those who use gas have disearded coal for cooking purposes. The gas sent out during the daytime for cooking purposes is 40 per cent. during the summer, and just over 50 per cent. during the winter, of the total quantity of gas made at the works.

FLOYD, WELLS & Co., Royersford, Pa., have placed a contract with John Denithorne, Sons & Co. of Phænixville, Pa., for an iron cupols, 6 feet in diameter and 40 feet high, for their stove foundry.

In showing the oven burner in gas ranges E. K. Conant, 9 West Fourteenth street, New York, uses a mirror, which is laid under the burner, so that a purchaser, without stooping, can readily see the flame and action of the burner. The Dangler ranges, which he sells, have proven very popular goods this year. Mr. Conant is now on a visit to the factory getting points on the goods he will handle for the fall trade.

WALTERS PERFECT COMBUSTION FURNACE COMPANY is the name of a new concern incorporated at Chicago, with a capital stock of \$200,000; the incorporators are William Walters, James P. Moulton, George W. Mahoney.

PAGE BROTHERS & Co. of Boston, Mass., are distributing an illustrated circular of the Ladies' Delight oil ranges and heaters, which they manufacture in several varieties. The goods are strong and durable, and are litted with burners constructed on the "central draft" principle, thus giving a great amount of heat without its being transmitted to the oil. The burner tubes, reservoir, &c., are of brass, and the construction throughout is of a substantial character.

THE PENINSULAR STOVE COMPANY of Detroit have recently distributed to their customers a new furnace catalogue and reference book bearing upon the subject of hot water and warm air heating. It is of a size to be readily carried in the pocket, and sets forth in concise form the merits claimed for the Peninsular hot water heaters and warm air furnaces. Half of the pamphlet is given up to 1'sts of names of some of those who are using the company's goods, and one page is devoted to the form of contract in use by the manufacturers.

THE ART STOVE COMPANY OF Detroit, Mich., are now running their works with a full force and 60 hours a week. They report a good demand for their oil stoves, referring especially to their large 15-inch wick oil heater, with combination flues and hot air ducts. On this form of stove, which is the same the company were using last year, they have been granted a patent covering some improvements. They have also taken out two patents on the new oil heaters which have been introduced for this year's trade. One is a circular improved 15-inch wick stove embodying original features, the other being a small stove which has already been placed on the market. It is built in a substantial manner and has all east iron parts in place of stamped brass.

S. B. SEXTON & SON of Baltimore, Md., have recently brought out a new low down radiating furnace, made in four sizes portable form and three sizes for brick setting. These heaters are especially adapted for use in low cellars and in places where it is desired to give a heavy incline to the pipes leading from it to the registers in the floors above. The radiators, which constitute a new feature, are so arranged as to allow a sufficient space between them and the fire pot for the passage of cold air. This is especially true of the lower radiator, the bottom of which being placed about on a level with the grate bed acts as a trench plate and equally distributes the cold air, which passing around and over this large heated surface warms it to the proper degree and discharges it into the living The dome over the fire is of rooms. cast iron, the cylinder, side and back radiating tube are of rolled steel, the feed door is lined with an inside per-forated plate, and the grate is of the prismatic pattern.

"FIRE FANCIES" is a beautiful book just issued by the Michigan Stove Company. It appeals to the artistic, the poetic, the literary and the romantic faculties. There are 20 pages of it, including the cover, and we venture to say that no one who picks it up will lay it aside until he has read almost every word of it. The work consists of a collection of quotations on the subject of fire from the writings of famous authors and choice poetical selections on fire and the fireside from the effu-sions of world renowned writers. These are illustrated and printed in quaint text or lithographed and illuminated in colors with much art. The selections have been made with great care and the exercise of a highly cultivated taste. The Garland trade mark is effectively introduced as a decorative feature and a few scattering pages are devoted to representations of the 1894 Art Garland base burner, the Art Garland new series, the Art Garland modeled series, the Peerless Garland surface burner and the Ideal Garland revertible flue and direct draft heating stove. Engravings are also presented of notable features of the company's World's Fair exhibit, as, for instance, the first anthracite self feeding stove made in America, the Mammoth Garland, which overshad-owed all other stoves and formed the company's pavilion, and the oldest cooking stove in America. The book is bound in enameled white paper, with a gorgeously illuminated back. It is mailed in a scarlet envelope.

BURDETT, SMITH & Co. bave discontinued shipments from their warehouse at Sixteenth and Johnson streets, Chicago, and now make direct shipments to their customers from the foundry, at Troy, N. Y. Edward A. Burdett, vice-president and Western manager, who has been in charge of the company's Western interests for a number of years,

has transferred his official duties to the home office. The company's business in Chicago is now in the care of Albert U. Peterson, whose headquarters will be maintained at their warehouse until some disposition is made of it. The building is specially adapted to the stove business, is admirably located for handling railroad or city trade and would fully meet the requirements of a stove manufacturer desirious of establishing a Chicago branch.

THE SUPERIOR FURNACE COMPANY of Little Falls, N. Y., have extensively circulated among the trade of the New England States an announcement calling attention to the agency they have recently established in Boston. It is located at 28 Union street, and is in charge of Henry A. Kelley, well known to the trade throughout the New England States. This agency has been cstablished to provide for the Eastern demand for Superior furnaces, heaters and ranges, and in order to enable the local dealer to see for himself and investigate the relative merits of the company's line of heating and cooking apparatus. Mr. Kelley will answer all inquiries, prepare plans and specifications and eall upon the trade at stated intervals with a view to more carefully presenting the merits of the goods which he represents.

THE CHICAGO & ERIE STOVE COM-PANY of Erie, Pa., have nearly completed the patterns for 15 styles and sizes of new gas heaters, which, added to their already extensive assortment, give them a line which cannot fail to command the attention of the trade.

THE GEM CITY STOVE COMPANY of Dayton, Ohio, are distributing blotters advertising their Clermont, Success and Perfect cooking stoves and ranges. One side of the blotter bears a finely line graphed representation of the Clermont cook, together with the company's business card.

The Thos. White Stove Company, Quincy, lll, are at work on an addition to their plant, which will shortly be completed. The ad tition is in the shape of a five-story brick building, built so as to conform with the building which it adjoins, and will be used for storage and mounting. This concern are having excellent success with their White's oak stove, which is made in four sizes for coal or wood. The base and bottom are cast in one solid piece, and it is claimed to be a perfect fuel keeper and easily controlled. The trade are invited to order a sample stove, and as every one is guaranteed, the fact is emphas'zed by the manufacturers that there is no risk attached to ordering this stove.

THE CHANNON-EMERY STOVE COMPANY. Quincy, Ill., have recently completed additions to their plant which will enable them to largely increase their output. The improvements consist of a new boiler and engine house, 30 x 40 feet, substantially built of brick, in which they have placed a new 100 horse-power boiler and 80 horse-power engine. They have also added a new four-story brick building, 50 x 80 feet, which will be used to increase their cleaning, mounting and trimming department, and a portion will also be used as a warehouse. A new nickeling plant has also been included, so that they are now in position to meet the requirements of a steadily increasing trade. Their stock of stoves is very complete, and they are in a position to ship very promptly.

M. HERTENSTEIN & Co of Columbus, Ohio, issue an illustrated circular call ing attention to their line of Royal ranges and cook stoves. The kinds shown are Art Royal ranges, Gem Royal cooks, Grand Royal ranges and New Royal cooks. The Art Royal ranges are adapted to coal and wood or strictly to wood, and are furnished in three The Gem Royal sizes and 48 styles. cooks are intended for coal and wood and are made in three sizes. The Grand Royal ranges are for wood only and are made in three sizes. The New Royal cooks are exclusively for wood and are also made in three siz.s. Another circular calls attention to the Gilt Edge oak stove, which is turnished in four aizes and is stated to be mounted with highest grade sheet steel, with every joint air and gas tight. The illustrajoint air and gas tight. The illustra-tions show all these goods to be of attractive appearance.

THE BENNETT & PECK HEATING AND VENTILATING COMPANY, Cincinnati, were granted an amendment to their charter changing the name to the Peck-Williamson Heating & Ventilating Company.

BUCHSCHATZ & BRENDLE, 529 West street, make a specialty of fire place brass goods, frames, fenders, andirona and ornaments. Various designs of fire place borders are made to suit special requirements.

PASSERS by the show windows of Edwin A. Jackson & Bro., 50 Beekman street, New York, are apt to stop, attracted by a handsome example of cast iron work which is displayed therein. The object is composed of three plates, designed for the back and side linings of an open fire place. They represent, of an open fire place. They represent, in relief, a Roman chariot with three horses, which, together with the charioteer, are executed with great spirit and artistic skill. The windows also contain some attractive specimens of the firm's art work in the form of wrought iron and brass andirons, fenders, lamps, &c. The interior of Messrs. Jackson's store presents an equally pleasing appearance. Rows of their ventilating grates, with mantels and variegated tile settings, are displayed on either hand, while fire place fixtures of all kinds occupy the center of the floor. All are arranged with a view to the artistic effect, which is assuredly obtained. The firm report a large and growing demand for their patent Jackson ventilating grates, which, they say, are now in use from Orilla, Ontario, to Los Angeles, Cal., and from Victoria, B. C., to St. Augustine, Fla.

It is the opinion of above manufacturers that traveling salesmen will work harder to earn their salaries this season than for some years past. Dealers generally are placing small orders and traveling salesmen will be obliged to make several trips over their territory so as to pick up all the business they should get. The manager of a large Chicago house says that he expects to keep his men on the road up to January 1 nnless the character of the trade materially changes in the meantime.

MANAGER HANRAHAN of the Chicago branch of the Peninsular Stove Company reports an improvement in the condition of trade which is highly gratifying. Several carload orders have been shipped this month, while small orders are more numerous. While the volume of business is below what it should be at this time, he has hopes that as the fall season advances a much better buying movement will develop. The Peninsular Stove Company have pre-

pared this year for the use of their agents a much larger line of advertising devices than ever before. comprise hangers, posters, picture cards, &c. Two very tine embossed cards, &c. pictorial cards have been issued, which are of a high order of excellence and are expected to attract much attention. The small picture cards comprise 39 styles, many of them having spaces in which the local agents can print their names and addresses. They are also distributing two kinds of memorandum books, one of which is bound in cloth and lettered in gold. A unique advertisement is a box of fine cut chewing tobacco. The box is handsomely lithegraphed, and the contents will be appreciated by many a lover of the weed, being the choicest product of the Banner Tobaceo Company of Detroit.

THE LEIBRANDT & McDowell STOVE COMPANY of Philadelphia are putting on the market the Arcadian, a six-hole range, in four sizes, with front ash pit and right hand oven door, a hardsome range of the higher grade. The Common Sense grate, recently patented, is used in this range, and appears for the first time. In heating goods they are introducing the Strat-ford open grate, having a blower which is easily and quickly adjusted to any point of opening without removal from the grate, and adapted to heat an upper room; the Tycoon square double heater with open front, and the Tycoon fire place heater, both made in three sizes and to meet the demand for low priced goods; and the Stratford square double heater, an open front stove with cold air supply at bottom, and having the new adjustable blower. The latter stove is not a self feeder. The company are getting out a new catalogue and expect to have it in shape for distribution toward the end of next

THE DE HAVEN STOVE WORKS, Al legheny, Pa., which have been idle for six weeks, will resume operation on Monday with 300 hands.

"THE JACKSON VENTILATING GRATE," is the title of a 16-page cat VENTILATING alogue in a buff cover, issued by Edwin A. Jackson & Bro., 50 Beckman street, New York. The first pages are de voted to letters from users giving an account of their experience on the practical points that are usually subject of inquiry by purchasers. These are followed by a full description of the grates, their style and finish, with dimensions and directions for ordering and setting. Cuts showing the grate are freely used, so that a design suitable to where it is to be used may be selected. A variety of sectional views show the manner in which the grates are set with an ash pan and with ash pit with cold air duct, to heat an upper room, and also views to aid a mason in doing the brick work. Borders, spark guards and mantel protectors are also Some space is devoted to ex tolling the merits of grates as heating and ventilating apparatus.

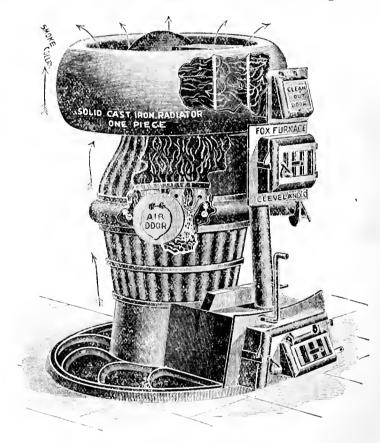
The whaleback steamer "Sagamore," which arrived at New York last week from Tampico, is remarkable on account of her economy in coal consumption. She attains a speed of 12 knots an hour on an expenditure of 16 tons of coal in 24 hours. The "Sagamore" was built at Sunderland, England, according to McDougali's plan, and has hitherto been employed in the Mcditerranean coal trade.

The Fox Sofi Coal Furnace.

In the accompanying engraving we present a view of the Fox east iron furnace, with smoke consuming attachment for soft coal, the outside casing being removed and portions of the radiator and fire box broken away. This heater is made of heavy eastings, the parts subjected to the greatest strain being corrugated. One of the particular features to which attention is in vited is the practical absence of joints. With the exception of the feed and clean out door openings the manufacturers state that there is only one joint above the gas ring. It is a deep cut joint, so that the cement with which it is packed is held tightly in place. Another interesting feature in connection with this heater is the smoke corsumer. The makers state that by means of a gas the air to be warmed is forced to travel between the two radiators and is carried almost over the center of the fire pot, which is the hottest portion of the fire. Three sizes of the Fox heater are made, in all of which special care has been taken to have every part of proper weight, with due allowance at all times for expansion and contraction.

South Dakota last week broke the season's record for warmth, 110° in the shade having been recorded at several points in the State. The intense heat is reported to have seriously injured the growing crops in the Dakotas.

An unusual number of New York City corporations are lodging protests in the Supreme Court against the as



The Fex Soft Coal Furnace.

ring, which is placed between the upper section of the fire pot and the radiator of the furnace, an air chamber is formed, leading to the outside of the furnace casing. Through this connection a cur-rent of air is taken and passed over the heated surface of the furnace, raising the air to a high temperature, after which it is introduced through openings shown in the fire pot into and above the fuel while in process of combustion, "affording a supply of heated oxygen, which, combining with the gases of the coal, cokes the coal and consumes the gases of which the smoke and smudge consist." The products of combustion are carried through the inner radiator to the outer one, which is a large cast iron tlue made in one piece and entirely encircles the inner radiator. After entering the outer radiator the products of combustion divide and travel around both sides of it before escaping to the smoke flue. The inner radiator ioclines inward from the fire pot, and between the two radiators is a large air space. Owing to the form of the outer radiator a large portion of

sessments on their property made by the Commissioners of Taxes for the present fiscal year. They include banks, trust companies, insurance, railroad and manufacturing companies and other large corporations.

The necessary appropriations having been secured, work has been resumed on the new ships at the Brooklyn Navy Yard. The completion of the cruiser "Cincinnati," and the alterations in the gunboats "Castine" and "Machias" are being pushed rapidly forward. The latter vessels will not, however, be ready for sea much before the middle of September.

It is reported that several members of a special committee appointed by the French Government to test the merits of a new explosive, discovered by M. Turpiu, a French inventor, have asserted that the wonderful claims put forth for it cannot be substantiated, and that, in fact, the explosive is in no way equal to ordinary smokeless powder.

# TRADE REPORT.

## The Iron Market.

The Iron trade continues exceedingly dull throughout the whole country. The demand is still very slow so far as Finished Iron and Steel is concerned, and that causes indifference to the scarcity in some sections of Pig Iron and Soft Steel.

The dominant factor at the present time is the continued delay in the resumption of full work in the Connells ville region; in fact, it has been frequently hinted that the leading Coke interest is in no hurry to supply the market. As it is, Pittsburgh is getting a steady supply, while the valleys and Wheeling have either no Coke at all or are getting very little. The result is that Bessemer Pig and Soft Steel continue scarce, and that the prompt decline expected by so many is not in aight for this month or for August.

The Chicago district has been able to take advantage of this situation and has been reaching further East for Soft Steel than it has done for a long time

past.

Pig Iron.—The light demand in the New York market seems to make impossible an advance which would otherwise follow the heavy restriction of the output. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25.

Philadelphia advices indicate an inactive market for Pig Iron in that district, but prices are very steady, and in spots are a trifle higher. The decrease in stocks shows that consumption is pretty well up to production, allowing for the increase during last month, and the probability of a similar increase during the current month. Since May 1 stocks appear to have decreased 330,000 tons, and although that was no doubt largely due to the shortage of fuel, it indicates that over 100.000 tons per week will be required to maintain the statu quo. Prices are steady to firm, with the general range of quotations as follows for Philadelphia or equivalent points:

 Standard No. 1 Foundry X
 812.50 @ \$13.00

 Standard No. 2 Foundry X
 11.50 @ 12.00

 No. 2 Plain
 10.75 @ 11.00

 No. 1 Soft
 11.50 @ 11.75

 No. 2 Soft
 10.75 @ 11.00

Very little new business was entered by any of the Chicago Iron houses here during the past week, but some large orders are still in sight, which are expected by the local furnace companies, that have been postponed for various reasons. For the present matters are extremely quiet. Shipments are still interfered with as a result of the strike, and it will require a week or more to get everything into proper condition. The dullness extends to all classes of Iron, including Southern Coke and Lake Superior Charcoal. Quotations are given as follows for cash:

Lake Superior Charcoat..... \$14.50 @ \$15.50 Local Coke Foundry, No. 1... 10.75 @ 11.00 Local Coke Foundry, No. 2... 10.00 @ 10.50

Local Coke Foundry, No. S	9 59 <b>%</b>	10,00
Local Scotch	16.75 %	-11.00
Ohio Strong Softeners No. 1	$13.00  \odot$	13,50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	®	1.11.
Southern Coke, No. 2	a	10.75
Southern Coke, No. 3	@	10,50
Southern, No. 1, Soft	@	10.75
Southern, No. 2, Soft	®	10.50
Tennessee Charcoai, No. 1	@	
Tennessee Charcoal, No. 2	@	54445
Alabama Car Wheel	17.50 @	18.00
Jackson County Silvery	15.00 @	18,00

There is very little demand in the Pittsburgh market for Foundry Iron for spot delivery, but the supply is very light and prices firm at \$11.75 @ \$12 for No. 1 and \$10.75 @ \$11 for No. 2.

In the Cincinnati market business in Pig Iron has been much restricted by the railroad troubles during the week, but the offerings of Southern Iron were not large and sellers were indifferent about selling unless at pretty full previous prices. The principal sales during the week have been in a jobbing way only. Quotations are as follows:

In St. Louis the local demand for Pig Iron is restricted almost entirely to carload lots. An occasional order for a 100-ton lot is received, but it is the exception rather than the rule. The stocks on the furnace banks are not large, and a slight improvement in the demand would quickly clear up all the Iron now in sight. Prices are well maintained, and while, as above stated, stocks are not heavy, consumers have no difficulty in securing what Iron they need. We quote as follows for cash, f.o.b. cars St. Louis:

 Southern Coke, No. 1 Foundry
 \$11.00 @ \$11.25

 Southern Coke, No. 2 Foundry
 10.00 @ 10.25

 Southern Coke, No. 3 Foundry
 9.75 @ 10.00

Quotations for Pig Iron range higher ru the Birmingham, Ala., district; furnaces are asking from  $50\phi$  to \$1 above market for future small deliveries, though as yet without success. It must, however, take but a slight impulse to start an upward movement. As a matter of fact quotations are now  $75\phi$  @ \$1 above what they were early this year. No. 2 Foundry and No. 1 Soft are quoted at \$7.50; No. 3 Foundry, \$7; No. 2 Soft, \$7.25.

#### Metal Market.

Pig Tln.—Buying has been commonplace in the extreme. Neither jobbers nor consumers have appeared inclined to make purchases beyond their immediate needs. The market has weakened in consequence, particularly as the statistical position of the metal is not at all encouraging. Shipments from the Straits during the first half of the month amounted to 2150 tons. This included 1000 tons to

Great Britain, 800 tons to the United States and 350 tons to the Continent. During the corresponding period last year 1525 tons were sent out from the Straits. There has been received since the first of the month about 1000 tons, and it is clear that the stock in first hands has accumulated to greater or less extent. This and the liberal amount of stock siloat from producing points, along with uncertainty as to what England may ship to this quarter, gives the market anything but a strong appearance. There are now at least 20,000 tons in sight for Europe and America; in other words, the equivalent of four months' consumptive wants on a liberal estimate. There is only a very narrow speculative interest in the market here. Jobbers' prices for small lots are unchanged at last week's quotations.

Copper.—Only routine trades of comparatively small dimensions have been made here of late, and the demand is extremely tame. Deliveries on old orders are taking care of the greater part of the supply that comes forward, however, and affairs are thereby so adjusted that prices remain very steady. For small lots of Lake Ingot from stock dealers ask 10½¢ % lb.

Sheet Copper.—Inquiries and orders are equally small and searce. Prices are well maintained according to the list on a 15%  $\tilde{\tau}^2$  lb, net, basis for moderate retail quantities.

Pig Lead.—Sales have been moderate, and now that transportation facilities are better, the tendency is to seek business at prices somewhat below recent popular quotations. Forward contracts are offered in the market at rates unusually favorable to the buyer, presumably upon the presumption that there will be an abundance of Lead during the autumn months. Dealers' retail prices for small lots range in the neighborhood of  $3\frac{\pi}{3}$  @  $4\phi$  per fb.

Spelter.—The market is in a very flat condition and prices for ordinary Western have not varied much. Offerings have been freer, and it has seemed easier to buy at the lowest figures lately quoted. Still jobbers hold, for small parcels, to about  $4\frac{1}{4}\phi$ .

Fin Plates -Except for a fair run of small orders for spot goods early in the week, the market for Tin Plates has continued very quiet. Consumers are not buying beyond their immediate requirements. Merely a routine trade has been done, chiefly at the prices that have ruled for some time past. Operations in futures have been slow, and buying interest is decidely tamer than is usual at this season of the year. Canners' requirements are being mainly filled from contracts placed earlier in the year; but even these have been curtailed in some cases, and the goods ordered have been placed in bond by the purchaser on their arrival. It is calcupurchaser on their arrival. It is calculated that the canners' packs will be at most three-quarters under the average this year. The peach, pea and small fruit crops are poor, and corn is not likely to be abundant in this vicinity. Tomatoes alone give a really good

promise. Rhoting Plates are in fair demand, particularly the native product. Prices are without radical change, but inclined to softness. Tariff uncertainties continue to demoralize the market.

Sheef Iron.-Inquiries are good and mills are fairly well supplied with orders for both Black and Galvanized Sheets, but business has not shown any extraordinary activity. Jobbers, indeed, characterize it as deadly dull, but mill agents report a good average demand and look for a better in the early fall.

Mills making Black Sheets for tinning are in especially good condition, having all the orders they can fill. The entire Black Sheet capacity is believed to have gone into operation this week, so that the temporary scarcity, which has been severely felt by the Tin Plate makers, will soon pass over. It is believed that American Black Sheet mills are now nearly able to take care of the wants of all the present American Tin Plate manufacturers. Prices are firm for both Black and Galvanized Sheets. For small parcels of the latter a discount of 75 % @ 75 and 5 % off is the ruling rate.

## Chicago Report.

Scrap.—Dealers quote the following list of buying prices, Chicago delivery:

prices, Office	go den	very:
No. 1 Wassell C	et ton.	Per tb
No. 1 Wrought Scrap	<b>\$7.00</b>	
MACHINERY LAST	6.00	
Maneable Cast.	5.00	
Diove Plate (free of hurnt)	4.00	
nurnt Iron and Grate Bars	3.00	
Sheet Iron and Hoons	2.00	
Flow Steel and Breaking	2.00	• • •
Stock	4.00	
No. 2, such as Shovels, Hoes,	4.00	• • •
&c	2.00	
Old Boilers—whole (Iron)	3.00	• • •
" (Jeon) and in the	3.00	• • •
(Iron)—cut in single		
Old Gas-Pine and Roller	5.00	
Tubes.	5.00	
Cast Dorings	3.00	
1 urnings	4.00	
LIUI SESHOES	8.00	
Copper Bottoms		51/4
COUPER CIIDS and Heavy		7 ¢
LICALVY Brass		
Light Brass		516¢
Pipe Lead	• • • •	3 ¢
Tee Lend	• • • •	21/10
Tea Lead		2 0
Zinc.		2 0
Rubber		3,52

Anthracite.—Almost nothing is now doing in this branch of trade. Carload lots of 12 net tons or over are quoted as follows:

as Tonowa.		
	Grate	gg, Sto and Ch
Chicago, Ill.	21 05	
Milmonto	<b>\$</b> 5.25	<b>#5</b> .50
Milwaukee, Wis	5.25	5.50
ABUSAS CITY, MO	8.45	8.70
Council Bluffs, lowe	8,45	8.70
Lincoln. Neb.	8.65	8.85
DIOUX City, Iowa	8.45	8.70
Aberdeen, S. Dak	8.50	
Dubuque, Iowa		8.75
Madison, Wis.	6,55	6,80
St. D. 1 36	6.75	7.00
St. Paul, Minn	7.75	8,00
Durington, lowa	6.75	7.00
Des Moines, lowa	5.20	8.45
Davenport, Iowa	6.55	6.80
St. Joseph, Mo		
Toomson, Mo	8.45	8.70
Leavenworth, Kan	8,45	8.70
Omaha, Neb.	8.45	8.70

### Colorado Anthracite.

COLORADO FUEL & ISON COMPAN	TY.
Denver	\$8.00
1 depto	8.00
COLUMN CARTAGO	8.00
AND CANALITY OF THE PARTY OF TH	8,00
	10.00
All points between Denver and Missouri River.	
M ESSOCITI MIVET	8.85

MEURER BROS. Company, Flushing avenue, Brooklyn. as announced elsewhere in this issue, are handling the Nash Ventilator, which is said to embrace many superior qualities, being self lubricating, noiseless and dust proof.

#### CONDITION OF THE

# Hardware Trade.

INCE the railroads stopped by the disturbances connected with the strike resumed operations, there has been a renewal of business in the centers directly affected, referred to in the following dispatches from Chicago and St. Louis as well other advices. The movement of general trade is not. The movement of general trade is not, however, at all active, and for the time being business is almost at a standstill. Most of the orders which are being received are from smaller houses who are sorting up or purchasing goods required for their immediate needs. The large trade are also to some extent placing orders, and it is reported that one or two of the leading jobbing houses are buying much more liberally than for some much more liberally than for some time, apparently regarding the present as a good time to purchase and get the benefit of the very low prices which on many lines are obtainable. The cases in which this policy is pursued are, however, comparatively few and quite exceptional, most houses purchasing cautiously and entertaining no especially sanguine expectations as to the volume of trade in the near futbe it is impossible to forecast with certainty, but in present conditions it is incumbent on buyers to watch the market closely and discover if they can market closely and discover if they can the earliest symptoms of recovery in the matter of prices or increase in the volume of business. It is certain that stocks in the hands of the trade and of manufacturers are exceptionally light, and if a normal demand should set in the market would probably in many lines promptly respond, developing possibly something of a scarcity and an enhancement of values.

Advices from Chicago.—A much larger trade has been enjoyed during the last few days by the jobbers in Shelf Hardware. Orders which have been kept back by the demoralized condition of the railroads are now coming in rapidly, and the concentrated business of the past two weeks is being felt. The Northwestern trade also now fully understand that Chicago is able to make prompt shipments. Mail orders are good as well as orders sent in by traveling salesmen. The Stove Board manufacturers are now quoting prices for the coming season, which are from 20 to 40 per cent. of an advance over those made last year. The Heavy Hardware trade is confined to small orders, which are tairly numerous. People are buying cautiously, and only from hand to mouth, but they seem to be obliged to buy often, and consumption is thus shown to be good, despite the appearance of extreme dullness. The Carriage trade is now about over for this season.

#### Notes on Prices.

Wire Nails.—The mills are nearly all shut down and report exceptionally light stocks, which are, however, amply sufficient for the very moderate demands which are made upon them. It is not unlikely that in many cases the mills will remain closed until some time in August, as the manufacturers are not disposed to accumulate heavy stocks until there are indications of a more satisfactory business. Quotations continue \$1.15 for carload lots at mill, a price which is quite well maintained, though sometimes shaded by jobbers. Small lots from store in New York are held at \$1.30 to \$1.35.

Advices from Chicago.—Manufacturers are booking almost no orders. Factories are shut down and stocks are light,

so that prices are firmly maintained. The small business is progress is being handled almost exclusively by jobbers, who are slightly shading manufacturers' prices on carload lots. Quotations are \$1.20 to \$1.25, Chicago, on factory lots, and \$1.25 for small lots from stock.

Cut Nails.—Cut Nails are held at about the same prices that have prevailed for the past week or two, the market in the East being represented by the quotation of \$1 for carload lots on dock at New York, a figure which is, however, slightly shaded in some cases, while, on the other hand, some mills ask a slightly higher price. Most of the mills are shut down, as usual at this season, and report light stocks. The store price for Cut Nails in New York is \$1.10 to \$1.15.

Advices from Chicago.—The Lakeside Works are expected to start up in a few days, or as soon as a regular supply of fuel can be depended upon. Wages have been adjusted for the coming year, and orders have accumulated in sufficient quantities to assure a steady run for some time. Quotations on factory lots are maintained at 95 cents, Chicago, on 55-cent average and \$1.15 on small lots from store.

Barb Wire.—The Barb Wire market is exceedingly sluggish and there is scarcely enough business to make a price. Quotations are therefore unchanged and the market is represented by the following prices for Four-Point Galvanized, delivered at the points named: Pittsburgh, \$2 05 to \$2.10; Clevelaud, \$2 10 to \$2.15; Cincinnatior Allentown, \$2 25 to \$2.30; Chicago or New York, \$2.25 to \$2.30. It is not unlikely that some concessions could be obtained from these figures, but manufacturers are not pushing for business.

Advices from Chicago.—Manufacturers of Barbed Wire seem to be letting the market take care of itself. The demand at present is very light from all classes of buyers, but quotations continue at \$2.35 to \$2 40 for small lots of Galvanized from store, with the usual reduction of 10 cents on carload lots. The Washburn & Moen Mfg. Company have started up their works and are now running full in nearly every department.

Screws.—The market for Screws continues to be somewhat weak and trregular and somewhat lower prices are being made more frequently than a few weeks ago.

Cordage.—Manufacturers are holding prices firmly on the basis of 74 cents for Manila in large lots, f.o.b. factory or New York. The demand, however, is very moderate and some of the jobbers who still have considerable Rope on hand are cutting this price more or less freely.

Portable Stoop Seat.—Magic Introduction Company, 321 Broadway, New York, are offering this article. The Seat is sold to the trade at \$5 per dozen net.

Magic Self Lighting Lamp Burner.

—This article is put on the market by
the Magic Introduction Company, 321
Broadway, New York. The Burner is
sold to the trade at \$5 per dozen net.

Acme Gas Cuke Griddle.—Stuart & Peterson Company, Burlington, N. J., are effering this article, which was described in our last issue. The Griddles are sold to the trade from the following list, which is aubject to a discount of 10 per ceut.:

Price. holding three griddles, capacity .\$17.00

Wringers .- The American Wringer Company, 99 Chambers street, New York, have issued revised prices on their line of Wringers. Advances are made in their standard first quality Wringers, auch advances being re ferred to by the company as covering but a portion of the increased cost of the goods on account of the superior quality of the rolls used in them. This is a matter to which the company have recently been and still are giving special attention, and for the manufacture of rolls the company have erected an exceptionally complete plant, which is now in operation. Terms are 60 days, or 2 per cent. discount for cash in 10 dava :

Reynolds & Co. - Reynolds & Co., New Haven, Conn., issue the following discount sheet, representing their present prices, which apply only to standard goods in full packages, terms cash in 30 days:

Discount
per cent.
70 mml 10
C. H. Iron Set Serews
C. H. Iron Set Serens
Soft Set Screws (fron or Steel) 70 and 10 and 5
Hexagon Head Cap Serews
Square " a 65 and 10
Solit Set Series (1997)   Solit Series (1997)
Flat Machine Screws.
milled from solid bar50 and 10
Button Head Machine Screws,
milled from solid bar50 and 10
Stud Bolts, milled over all 35 and 10
Round Head Iron Machine Screws
Flat " " " " " " " " " " " " " " " " " " "
Round Head Iron Machine Screws.         70           Flat         " " " " " " " " " " " " " " " " " " "
Reund " Brass " "70
Flat " " " "
Stove Bolts, in boxes
Milled Counting Boils, neads and
nuts ground
Milled Coupling Bolts heads and
nuts not ground
Taps25
Taps
smaller65
Finished Hexagon Nuts, larger than 114
inch
inch
smaller70
smaller
than 114 inch60
than 14 inch
a light Sills
Coach Screws, plain points85 and 5
Coach Serews, plain points

Horse Nalls .- At a recent meeting of the manufacturers of Horse Nails it was decided to maintain present prices on all grades, and as a result the market is referred to as somewhat more regular and on the whole in a better condition than for some time.

Glass.-The market in American Window Glass continues without important change, although the demand has perhaps alightly improved owing to the fact that the railroads in the West are again in pretty fair shape for the reception of business. Whatever buying is done is for immediate con sumption and consists for the most part of small lots, an entire absence of speculative demand being noticeable. Owing to the competition of the jobbers who have on hand atocks of Glass purchased at low prices manufactur-era have been compelled to slightly shade their previous quotations, the quotation on Pittsburgh Glass being now 80 and 20 per cent. Plate Glasa is in a very satisfactory condition and the outlook for the future is regarded as very promising. Quota-

tions for New York and New Englandon the Eastern list, are 70 per cent. dis count for sizes 5 feet and over, and 70 and 10 per cent, discount for sizes 5 feet and under. For the West quotations are reported as 70 and 5 per cent. discount for sizes over 10 feet, and 60 and 20 per cent. discount on sizes 10 feet and less, Western manufacturers'

Old Metals.-The market continues quiet, but prices remain steady. Some descriptions of Scrap Iron are in med erately good demand. and command a tritle of advance over last week's quotations. The following quotations represent current prices paid by New York dealers:

Heavy Copper. # 15 Light and Tinned Copper # 15 Heavy Brass # 15 Light Brass # 15	5 ¢
Lead. 零 b Tea Lead. 零 b Zinc. 零 b No.1 Pewter. 零 b	28.4 21.4 21.4
No. 2 Pewter	6 6

Old Rags, Paper, &c .- A quiet market is reported, with prices generally at their former level. Dealer's prices, New York delivery, are about as follows:

No. 1 White Rags # 10 31/4 @ 31/4
No. 2 White Rags # 15 2 @ 21/4
Mixed Rags B b
Blues and 3ds
Hard Sized White Shavings 1 b 21/4 @ 28/4
No.1 White Book Snavings # Ib 184 @ 21 6
No.2 White Book Shavings h 11/8 @ 11/4
Light Book Shavings # 1b 8/4
No. 1 Mixed Shavings # Ib 1 @ 11/4
No. 2 Mixed Shavings # b % @ 1 ¢
No. 1 Printed Books \$ 15 1 @ 146
Ordinary Mixed Books # Ib % @ %
Newspapers # 15 2-5¢
No. 1 Manila Paper # 15 % @ 1 ¢
No. 2 Manila Paper # 1b % @ 846
Bogus Paper 1b
Common Paper P 11 %¢
Straw Chips # Ib
Binders' Clippings # 1b
Jute Butts # 15
No. 1 Jute Bagging # 15 1 ¢
Mixed Bagging # 15 % @ 1 ¢
No. 2 Bagging B Ib 1/4 @ 1/4
Hemp Twine # 15 2 @ 24¢
Manila Rope B 15 21/8 @ 21/4 ¢
Jute Rope # 15 1% @ 1% ©
Mixed Rope \$ 15 % @ 1/8¢

Old Rubber.—Dealers' purchasing prices, New York delivery, are as follows:

Car Springs, ton lots, \$\ \mathbf{D}\$ \ \mathbf{D}\$. \ \alpha \ \\$0.03\forall \\ \text{Rubber Shoea, carloads, delivered at factory, \$\ \mathbf{D}\$ \ \mathbf{D}\$. \ \alpha \ \alpha \ \delta\forall \\ \mathbf{Rubber Shoea, less than carloads, \$\ \mathbf{B}\$ \ \mathbf{D}\$. \ \ \alpha \ \delta \ \delta\forall \\ \mathbf{D}\$. \ \ \alpha \ \delta \ \delta\forall \\ \delta\forall \delta\forall \\ \delta\forall \delta\forall \\ \delta\forall \delta\forall \\ \delta\forall \delta\forall \delta\forall \\ \delta\forall \delta\forall

#### Trade Notes.

THE SCRANTON CHIMNEY CAP COM-PANY are a new manufacturing concern recently organized at Seranton, Pa. Charles McMullen, G. R. Clark, W. C. Carey, M. W. Finn and W. J. Renniman are the incorporators.

THE BUDKE MFG. COMPANY, 421 Wood street, Pittsburgh, Pa., are sending circulars to the trade relative to their Acme Nesting Stove Pipe, to the advantages of which they refer. They also call attention to their Drip Pans and four-pieced Elbows.

THE PLANT of the Canonsburg Iron & Steel Company, Canonsburg, Pa., manufacturers of fine sheet iron and sheet steel, was closed down on Saturday, June 30, for stock taking and repairs. It is expected the entire plant

will resume operations about August 1 rext, and the new tin mill recently erected by the firm will be put in operation at the same time.

I. P. FRINK, 551 Pearl street, New York, is in receipt of a very flattering testimonial letter from the secretary of the Board of Trustees of the First Presbyterian Church, at Asbury Park, N. It relates to the contract given for lighting their church, and, while it is mentioned that the price paid was higher than the figures for which the work would have been done by other concerns, the trustees were fully satisfied on account of the excellent results

WE ARE INDEBTED to Francis I. Maule, 328 Chestnut street, Philadelphia, for samples of advertising blotters, which are gotten up in the unique style characteristic of Mr. Maule's work.

#### CONTENTS.

U	ditorials: PAC	E -
r.	Relatorator Dry Wells	35
	Proposed Legislation Relating to Care	35
	of Steam Boilers	
	A Reprehensible Practice	35
	A Possible Danger	35
	No More Cyclones Feared	35
1	The Letter Box-	0.0
	Comparative Cost of Fuel	36
	Capacity of Gas Pipes	36
	Wants a Cheap Japan	36
	Wants a Cheap autain	36
	I'tilizing Condensation	36
1	Double Hot Air Stack and Branches, III.	37
,	Millet's Patent Portable Core Oven	
1	Thetrotod	37
		37
'	Triplex Power Pump. Illustrated	***
	Plumbing and Gas Fitting	
	The Reinforcement of Deficient Water	
1	Supply in Wells. Illustrated	38
l	Supply to wens. Indistruction [lbig	39
1	The Diamond Gasoline Toreli. Illus	40
	Hopper Closet Specialties. 11108	
	Onondaga Bathtub. Illustrated	40
ı	G. & V. Pipe Clamp	41
L	G. & V. Pipe Champion	41
1	Traps and Vents	
l	Steam and Hot Water-	
1	The Winchester Heater. Illustrated	42
l	Early Reminiscences in Hot Water	•
1		42
ı	Heating	43
l	The Boyce Heater. Hlustrated	
ı	Hot Water Heating from Steam Boner.	
l		
١	Heating Notes. The Edgar Hydraulic Molding Machine Illustrated	44
ł	The Edgar Hydraulic Molding Machine	45
1	Illustrated	10
Т	usonne and Cornice-	
L	Grand Rapids Metal Work. Illus	46
1	Flashings gal traited States	46
1	Flashings Railway Statistics of the United States.	. 47
ł	Tin Plates—	
ı	Additional Tin Plate Brands	. 48
ŀ	British Tin Plates in 1893 Tin Plates.	48
1	British Tin Plates in 1893 A Canadian on American Tin Plates	. 48
ı	A Canadian on reasons	. 49
ı	Sciap Improvement in Lamp Stoves, litus	. 49
1	The Retail Store-	
Т		. 50
١	The Novelty Metallic Retrigerator, in Utility Oscillating Washer. Illus Magic Self Lighting Lamp Burner. Ill The Geyser Coffee Pot. Illustrated Heating and Plumbing-New Work and Contracts.	. 50
1	traity Oscillating Lamp Burner, Ill	. 50
Ţ	The Cover Coffee Pot. Illustrated	. 51
1	Henting and Plumbing-New Work and	d -1
-1	Contracts Uncle Sam Dampers, H'ustrated	. 51
-[	Uncle Sam Dampers. H'ustrated	. 52
1	Gas Heating Apparatus. Illustrated	
-	m	
١	The Local Stove Trade	. 54
1	The Local Stove Trade The Co-operative Foundry Company.	. 54
١	Improved Fire Box Construction II	l. 54
-1	The Ce-operative Foundry Company, Improved Fire Rox Construction I. The Gem City Stove Mfg. Company Works of the Hood Furnace & Suppl Company, Illustrated	. 55
-	Works of the Hood Furnace & Suppl	y . 55
Ų	Company, Illustrated	. 55
- [	THE MANAGEMENT AND A DESIGNATION OF THE PARTY OF THE PART	561
- 1	Welcome Stoves and Ranges	ໍ້ວໍຣີ
1	Welcome Stoves and Ranges The Bridge & Beach Mlg. Company. Bussey & McLeod Stove Company.	56
- 1	Odd Entes	. 56
- [	The Fox Soft Coal Furnace. Hus	58
- 1		
ı,	Trade Report-	59
١	The from Market	
	Metal Market	
	Chicago Report	. 60
	Notes on Prices	.,,,
		61
1	Metal and Miscellaneona Prices	
	Labor Exchange-	
.		64
.	neib manted	64
'	Dividationa il dilitore il i	

# Metal and Miscellaneous Prices.

#### CHICAGO, JULY. 19, 1894.

<b>-1</b>	0.1- 0.4 0.4.4
Tin-	Coke Plates,—Bright.
the second of Time Distance	Elwood -1C, 14 x 20\$6.00 IC, 20 x 2812.50
Imported Tin Plates— Charcoal Plates.—Bright.	Roofing Plates.
Quaranteed Plates command special	Palm, 1C, 20 x 28@\$11.50
prices, according to quality.	Yalm, IX, 20 x 28@ 14.00   ≺mptre, IC, 20 x 28
(IC. 10 x 14 & \$6.75	Palm, 1C, 20 x 28.
	IX, 20 x 28
IC, 14 x 20	Alaska 1X, 20 x 28
	Special, 1C, 20 x 28
IX, 14 x 20	Westinoreland;
IX 20 x 28	1C, 14 x 20. \$8,00 1C, 20 x 28. 12.00
(IC, 10 x 14@ 6.35	Elwood :
1X   12 x 12   6 5.76     1X   14 x 20   6 8.75     1X   20 x 28   6 17.50     DC   12\sq x 17   6 6.56     DX   12\sq x 17   6 8.56     C   10 x 14   6 8.35     C   12 x 12   6 6.36     C   12 x 12   6 6.36     C   14 x 20   6 6.35     C   24 x 28   6 12.76     C   24 x 28	IC, 20 x 28 \$11 50
Allaway Grade, 10, 14 x 28 12.70	Kenwood: IC, 20 x 28\$11,50
IX. 20 x 28 15.20	Furmston:
Oome Plates—Bright. Per hox.	10, 20 x 28\$11,00
Steel Coke—10, 10x14.14x20,@\$5.60	1C, 14 x 20, \$5.75 1C, 20 x 28, 11.50 Illinois, Old Metbod;
Steel Coke—10, 10x14.14x20@\$5.80 IC, 14x20.90 b	Illinois, Old Metbod ;
10 x 20 @ 8.50	IC, 20 x 28\$17.00
10 x 20	1C, 20 x 28\$1 2.50
B.V. Grade. 1C.10x14, 14x20.5.75@ 5.85	Scott's Extra Coated, Stamped and Resquared, IC, 14 x 20 x 2
Charcoal Plates.—Terne.  Suaranteed Plates command special	Resquared, IC, 14 x 20\$9.50
prices, according to quality.	Resonated IX 14 x 20
IC. 14 x 20 2 \$5.50	Scott's Extra Coated, Stamped and
20 x 28@ 11.00 IX. 20 x 28@ 14.00	Scott's Extra Coated, Stamped and Pesquared, IC, 20 x 28 10.00 Scott's Extra Coated, Stamped and Resquared, IX, 20 x 28 22.00 Navilla Stamped IC 14 20 6 8 8
Worcester Brand and equal.— IC, 14 x 20 6.12463 IC, 20 x 28 12.26 6 IX, 14 x 20 7.62466 20 x 28. 15. 25 6	Resquared, IX, 20 x 28 22.00  Neville, Stamped, IC, 14 x 20 6.25  " " IX, 14 x 20 7.50  " " IC, 20 x 28 12.60  Taylor's Old Style, IC, 14 x 20  (Stamped and Resquared) \$2.56
IC, 20 x 2812.25 @	" " IX, 14 x 20 7.50   10.00 x 28   12.50
12, 14 x 20., 7.62 (d) 20 x 28, 15, 25 (d)	IX, 20 x 2815.00
Tin Boiler Plates.	(Stamped and Resquared)\$9.50 Taylor's Old Style, IC, 20 x 28
Per box of Per box of 100 sheets. 112 sheets.	Taylor's Old Style, IC, 20 x 28 (Stamped and Resonared)19.00
X. 14 x 28\$13.00 \$13.00	(Stamped and Resquared)19.00 Taylor's Roofing, IC, 14 x 20
XX.14 x 2814.50 14.50 X,14 x 3114.50 15.80	(Stamped and Resquared) 8.25 Taylor's Roofing, IC, 20 x 28
X, 14 x 31 14.50 15.80 XX, 14 x 81 16.50 17.50 Per box of	(Stamped and Resquared)16.50   Columbia, IC, 14 x 20 (Stamped) 7.25
56 sheets.	" IC, 20 x 28 (Stamped)14.50   Maple IC 14 x 20 (Stamped) 6.75
X, 14 x 56 29.50 16.50 XX, 14 x 56 32.50 18.20	1C, 20 x 28 (Stamped)13.50
X, 14 x 60 31.50 17.65 XX, 14 x 60 35.50 20.90	IC, 20 x 2813.00
	Kuoxali, IC, 14 x 20
American Tin Platea	Globe, IC, 14 x 20
Charcoal Plates.—Bright.	Miami, IC, 14 x 20
Florence.— IC, 10 x 14, 12 x 12, 14 x 20\$6.76	" 1C, 20 x 28
IC, 10 x 14, 12 x 12, 14 x 20\$6.75 IX, 10 x 14, 12 x 12, 14 x 20 8.50 Palma.—	Taylor's Roofing, C. 20 x 28 (Stamped and Resquared) 16.50 Columbla, IC. 14 x 20 (Stamped) 7.25 IC. 20 x 28 (Stamped) 4.50 Maple, IC. 14 x 20 (Stamped) 4.50 Maple, IC. 14 x 20 (Stamped) 13.50 Willow, IC, 14 x 20 6.50 Willow, IC, 14 x 20 6.50 Kuoxall, IC, 14 x 20 6.25 IC, 20 x 28 12.50 Globe, IC, 12 x 20 6.00 "IC, 20 x 28 12.50 Mann, IC, 14 x 20 6.00 "IC, 20 x 28 12.50 "IC, 20 x 28 12.50 "IC, 20 x 28 15.50
IC, 10 x 14, 12 x 12, 14 x 20\$7.00	
IC, 10 x 14, 12 x 12, 14 x 20\$7.00 IX, 10 x 14, 12 x 12, 14 x 20 9.00 Each extra cross \$2.00 and 20 x 28	1C, 20 x 28
Brilliant Tissue Packed IC 14 x 20 to 25	IX, 20 x 28
Boyal extra. IC, 14 x 20	IC, 11 x 20
Royal extra. IC, 14 x 20.     7.25       Merion, IC, 14 x 20.     7.00       Almond, IC, 14 x 20.     8.50       Mint, IC, 14 x 20.     6.25	C, 14 x 20
mint, 10, 14 x 20	1 1X, 20 X 2818.50

•	•
.	Sheet Iron-
\$6.00 12.50	Black.
0813 50	Non. 10 to 16 2 2 3 10¢ 3 1-10¢
@\$11.50 @ 14.60	17 to 20
@ 14.60 @12.00 . @15.00	25 and 26 W to 2 8-10# 3 4-10#
(d. 12.DU )	Common American Refined.  Nos. 10 to 16. \$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
@ 15 50 28@\$14.50 @ 17.75 @ 14.75 @ 17 25	Genuine Russis, all numbers13¢ net.
17.75	dia. 6%
@ 17 25	Craig's Polished Sheet Steel834#
	Juniata or first qualitydia.75@5%
\$8,00 12,00	Copper-
	Lake Ingot.
11 50	Lake
\$11,50	Sheet and Bolt, Discount on old list (except advance on cold rolled polished boiler sizes to
	on cold rolled polished boiler sizes to
\$11,00	250, 20%.
\$5.75	Copper Bottoms, Discount on old list, 25%.
	Seamless Brass and Copper Tubes.
\$17.00	Base arice 1722# Chicago With Attrast
\$12.50	according to size.  Copper, Bronze and Gilding Tuba, 3# #
\$12.00 d and	
d and	Brazed Brass Tubing. (160 to lots.) (To No. 19 inclusive.)
d and	Discount, 40f.  Plain, 34 inch up to 2 lnch
11.00   d and	Plain, % lock up to % loch33
19.00 d and	Plain, % inch up to % inch
	Plain, 5-16 inch up to 3s inch 48
6.25	Plain, 3-16 inch up to 1/2 inch 1.00
	Plain, ¼ inch up to 3-16 inch 1.50
15.00   r. 20	Plain, 3 inch and larger Special,
28 28	Brouze and Copper
20	Roll and Sheet Brass. (100 D lots.)
8.25	Discount, 40%.
8.25 28	Slab Spelter-
28 16.50 1)7.25 1)14.50 6.75 13.50 6.50 13.00	Western Spelter 4¢ Sheet Zinc-
6.75	600 b casks 456d
13.60	600 b casks
13.00	
6.25 12.50	Lead-
	Bar
12.00	Pipe
6.00	Soft Pig Lead     334c       Bar     190       Pipe     536¢ dia 10¢       Biock Tin Pipe     35e       Sbect     6¢ dia 10¢
15.00	Solder—
	Extra Wiping11%¢
11.00*	The prices of the many other qualities of Solder in the market indicated by pri-
18.00 22.00	vate brands vary according to composi
	tion.
7.75 9 25	Antimony-

Wrought-Iron Pipe-
14 and nnder, Plain. 5734 14 and under, Galv. 504 15 and over, Plain. 6734 15 and over, Galv. 574 16 and over, Galv. 574 Botler Tubes, list Oct. 24, 1892. 708.105 Casing, list Nov. 16, 1892. 5245 Inserted Joints Casing, list Nov. 16, 1892. 4785 Steel Bolier Tubes. 278 Cold Drawn Seamless Steel Tubing. 60
Cast-Iron Soll Pipe-
Cast-Iron Soll-Pipe, Tarred; sizes 2 to 6 inches, inclusive
Leader Pipes— Abendroth's Gatv. Spiral Riveted
Furnace Fittings— Discount from Excelsion Steel Furnace Co.'s list
Steel Roofing-
Perfection
Metallic Shingles-
Cushman's
Copper, 14 ox\$36.09 aquare
Cushman's \$1.75 square Merchant & Co.'s Spanish Tiles: Copper, 14 ox \$36.09 square Tin \$9.75@\$14.25 square Steel, painted \$9.00 square
Drain Pipe—Tile. Discount from list
Paints, Oils, &c
Deodorized Benzine
Linseed Oil, Boiled, in oola
Red Venetian in oil: asst'd cana. 856s:
Spirits I di pentine, in bols., w garoor
Asphaltum, Trinidad Refined, \$\psi\$ ton\$40 Tarred Felt, 1 Ply, \$\pi\$ 100 \$\psi\$\$1.60 Tarred Felt, 2 Ply, \$\pi\$ roll 108 \$\pi\$.
Aspbaltum, Trintdad Refined, \$\psi\$ ton\$40 Tarred Felt, 1 Ply, \$\pi\$ 100 \$\pi\$

### NEW YORK, JULY 20, 1894.

The following quotations are for small lots.

Alum!num-	
No. 1 Aluminum (guaranteed over 98%	
pares, in rolling ingots	
Small lots	
Top lots a n 60¢	
No. 1 Aluminum (guaranteed to be over	
98% pure), in ingots for remelting	
Small lots	
Ton lots b B. 15c	
No. 2 grade (guaranteed to be over 914)	
pure Aluminum), cast in ingots for re-	
melting: Small lots	
100-D lots # B, 55¢	
Top lota N D. 50c	
Antimony-	
Antimony-	
Hallett's 114	
Brass-	
Planishednet	
Roll and Sheet25@30x	
Brass and Copper Tubes	
Brazed Brass Tubing-	
Brown & Sharpe's Gauge the Standard.	
List April 9, 1894.	
Plain Round Tube. Per b. \\ 4 in. up to 2 in	
%-in. up to %-in	
% in, up to % in	
%-in.up to %-in	
3( in.up to 5.18-in	
8-16-in.up to 4 in 1.00 a	
1.50 ≥ 15-ln 1.50	
Smaller than %-inSpecial	
8 in, and larger	
Copper and Bronze Tubing -	
84 # D more than brass	

Corrugated. Round or Square-
Galvanized. 60% Galvanized, Locked Joints. 80%
Galvanized, Locked Joints
Tin60%
Spiral Riveted-
Galvanized50%
See also Elbows and Shoes; Eave-
Trough Miters, Strainers, Con-
ductor.
Conductor Strainers-See
Strainers, Conductor.
Copper-
Bottoms, Pits and Flats, 196 W B, uet
Ingot.
Lake 10% Ansonia Grade Arizona 10 ¢
Ansonia Orade Arizona10 ¢
Absobia Grade Casting9162
Planishednet
Sheet and Bolt 15¢ W B, net, basis
Tubes - See Seamless Brass
Tubes.
Eavo Troughs-
Lap or Slip Joint, Galvanised 50&10\$
Lap or Slip Joint, Galvanised50&10% Lap or Slip Joint Terne. 66%
Eave-Trough Mitres-
Lap or Slip Joint
Elbows-
Plain Adjustable-
Tin70\$
Galvanized705
Crimped Tubing-
Re-Tinned or Galvanized
Stove-Pipe-
lluffalo Fonr-Piece.
Huffato Four Piece. 44, 5 54, 6 7 inch, 80.78 .87 .90 .99 1.20 per dox .20 \$

Conductors-

	Elbows and Shoes-	I E
	Flat Crimp,	
"	Corrugated.	l
	Flat Crimp.	
•	Galvanized60%	L
- 1	Round of Square. Tin	ì
		I۲
9	Iron, Sheet-	ī
i	Black. Common R. O. Cleaned	
. '	t and a second a seco	
t :	American American	1
	Nos. 17 to 21 \$ 5.2.60 2.000	1
	Nos 25 and 26 % % 2.80 3.10¢	1
	No. 27 * b. 2.90 8.20¢	Ī
5	No. 28	ģ
	Russia, Planished, &c.	
8	Genuine Russia, secording to assortment * 5, 114612364	4
i	ing to assortment \$ b, 114(@12)44	
	Patent Planished \$5, A, 100 B 06 5% Craig Polished Sheet Steel? 2 886	1
6	Crang Polished sheet sice 2 3/20	ľ
•	Galvanized.	I
	В, В,	l
t	Nos. 10 to 16	
	Nos. 22 to 24.	ı
.	Noa. 25 to 26	1
	Noa. 25 to 26	
١.	No. 28.	
٠	No. 29 No. 39	ı
	Lead-	ı
	American Plg 346646	
	Bar 446 6146, 20%	
١	ытре 6¼¢, 20%	1

Tin Lined Pipe
Old Lead in axchange, 23/6 % b.
Metal, Expanded—
Manufacturers' list No. 5.
Lathing
Door Mats, Galvanized
Tree Guards, Paneled 153
Mitres, Eave-Trough-8e-
Paints, Olls &c
Lead, Amn. White, in oil 64 @ 714 Lead, Red, bbla. and 4 bbla 64 @ 7
Lead, Red, kegs
Red on tlan, American 11/2 23/2
Raw, * gal
ipirits Turpentine:
Putty:
In barrels and 14 bbls
In bladders
Roofing Material, &c.: Asphaltum, Trinidad Refined, *
ton. \$30.00@\$35.00 Asphaitum, Rock, * ton. \$11.00 Coai Tar Felt, 1 Ply, * b 2¢ Coai Tar Felt, 2 Ply, * roll 108 sq. ft.
Coal Tar Felt, 2 Ply, # roll 108 sq. ft.
Coal Tar Pelt, 3 Ply, w roll 108 mg ft. 82.85
Boofing Pitch, W Dbi \$2,25

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, July 28, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 Reade Street.
PHILADELPHIA220 South Fourth Street,
BOSTON
PITTSBURGH Room 509 Hamilton Building.
CHICAGO59 Dearborn Street, cor. Randolph.
CINCINNATIRooms 22-24 Pickering Building.
ST. LOUISBank of Commerce Building.
CLEVELAND312 The Cuyahoga.

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Index to Reading Matter ..... Page 54.

#### Getting to Work Again.

Factories of every kind are resuming operations all over the country. Operations had in numerous instances been suspended for lack of fuel after the coal strike became general. Other concerns closed until wages were settled for the coming 12 months. Very many shut down on account of the railroad strike, which cut off their receipts of materials as well as prevented shipments of products. In other cases it was necessary to take some time for repairs usually done at this season of the year. It is gratifying to note that the resumption of work is quite general. Among those which have started up are not a few whose owners but a short time since were in doubt as to whether they would not find it impracticable to reopen their doors until well into the fall. That they have come to a different conclusion is evidently due to the fact that the demand for their goods is improving and prospects for business are therefore brighter. The Western banks report a better demand for money from their country clients, which they are pleased to see. The currents of trade are beginning to flow again and the movement thus begun may reasonably be expected to gather strength until the producers of raw products are also affected. As long as so many furnaces are out of blast and steel works are idle or running light, the business of the country is seen to be not in a healthy condition. But they may be expected to gradually fall in line from this time forward. The worst is over and the country is far from being ruined.

#### A Time to Push.

One cannot help feeling a high degree of admiration when he chances to meet a manufacturer or merchant able to overcome the depressing influences of the times. There are men who have shown themselves capable of building up and extending their business in the

teeth of the hard times and in spite of | tive humidity of about 75 per cent. the diminished consumption of goods. In some way they have managed to secure a piece of the touchstone of success and they pursue their way without regard to discouraging conditions, managing in some fashion to transmute them to something of benefit. A case in point, which recently fell under the observation of the writer, is that of a manufacturer of articles of a quasi staple character who spent a very short time mourning over the dullness of trade last year. Realizing that something had to be done if he proposed to continue in business, he studied thoroughly the equipment of his factory to see how it could be improved and his cost of production cheapened. Investigation disclosed the desirability of some special machinery for certain work and the installation of better machines in other departments to make the labor done there more effective. Orders were sought on a new basis and a fresh start was taken. From that time a steady gain was made from month to month in the volume of business handled. Further than that, the impetus thus acquired was due to such a plain cause that the manufacturer has profited by the lesson learned and is now on the alert to see what new machine or new method he can introduce to keep up the speed. For him 1894 may be remembered as a year of very hard work, but not as a time of business stagnation and wasting capital.

#### Humidity.

The exact relation existing between humidity of the atmosphere and our personal comfort while we are surrounded by it is still an open question. There is not even unanimity of opinion as to whether our comfort is to be measured solely by the relative or by the absolute humidity-that is, by the amount of moisture in the air relatively to its total capacity for absorption or by the total amount present irrespective of the absorbing power. Certain it is, however, that the humidity, no matter how measured, has much to do not only with our comfort, but may even determine whether life itself shall continue if the person be exposed for a great length of time to given atmospheric conditions. It is certain that the com plete removal of all moisture from our atmosphere would eventually result in the extinction of the human race, while almost parodoxically it is true that there is marked immunity from disease in excessively dry climates. We generally look upon the average summer day in the Northern portion of this country as best meeting the atmospheric conditions necessary to our comfortable existence. That is, a temperature of about 70° and a relaalthough a slight increase in the moisture of the air will have no sensible

Loss of Animal Heat.

When we speak of cooling ourselves we really imply that we place ourselves in such relation to cooler objects as to permit of the more rapid dissipation of heat from our bodies. For, by the physical and chemical processes going on within us, whereby there is actual combustion of the carbon of the blood, heat is generated, which must by some means be allowed to escape from the body. Three means for this dispersion are provided: 1. Radiation to the air and surrounding objects. 2. Conduction, principally to the air in immediate contact with the body. 3. Evaporation of moisture from the lungs, throat and skin. It is one of the wonders of nature that there always exists such proportion of action between these three agencies that a healthy body remains at an internal temperature of just about 98° F. irrespective of climatic conditions. Radiation and conduction are practically constant in their relative efficiency at any stated temperature and condition, while the evaporation varies widely with the humidity of the atmosphere. In comparatively dry air equality of temperature is kept up by a steady but imperceptible evaporation from the skin. In moist air this rapid evaporation is retarded and the water deposited as perspiration, the air being too heavily laden to take it up. Air in motion increases both conduction and evaporation by the constant bringing of fresh air to take the place of that already moistened or heated. High humidity has the effect of modifying very materially the temperature at which comfort may be secured. Thus the moist climate of the British Isles, particularly in the South and West, renders a temperature of 56° to 60° nearly the equivalent of 75° to 80° in the dry Northwest of the United States-that is, so far as the senses are able to detect it in the matter of personal comfort.

#### Cost of Humidifying.

All this goes to show the desirability of properly moistening the air within our dwellings and thereby producing an artificial atmosphere approaching as nearly as possible to that of an average summer day. It appears such a simple matter to secure the proper degree of humidity by the use of water pans, sprays and the like, that the actual cost of the operation seldom receives its share of attention. In this process it is, of course, necessary not only to evaporate the water into steam

of low tension, but also to heat this water, steam or vapor to the final temperature of the air in which it remains absorbed. As is well known, the absorbing capacity of air increases very rapidly with its temperature. This is not evidenced by the relative, but only by the absolute humidity. Thus at 0 a cubic foot of saturated air can coutain only 0,000079 pound of water, while at a temperature of 72 this would be increased to 0,001221, and at 112 to 0,003946. So, of course, the moisture that exists in t cubic foot of saturated air at zero will be practically imperceptible where the same volume of air has been raised to 72 without further acquisition of moisture. It is the heat necessary to the process of humidifying this volume to the proper point that therefore measures the cost of the operation. No comparison cau be more justly made and no figures can better illustrate this fact than those taken from actual observation. Hence the following record of temperature and humidity in the city of Philadelphia: Average temperature for the months of January, February and March, 34; average humidity for same period, 68.8 per cent., equivalent to 1.57 grains of water per cubic foot. For July, August and September the average temperature was 71 and the average humidity 68.3 per cent. If we consider, for the sake of round figures, that 68.3 per cent, be the proper humidity for a temperature of 70°, then a cubic foot of air at that temperature must contain 5.46 grains of vapor of water. By a little calculation it may be shown that in order to heat I cubic foot of the winter air from 34 to 70° would require 0,635 British thermal unit. If at the same time sufficient moisture is added to secure a final relative humidity of 68.3 per cent. at 70°, allowance being made for expansion of air and vapor due to heating, there will be required for the process of moistening alone no less than 0.612 British thermal units, or almost as much as was necessary for the heating of the air. Of course, for the purpose of maiutaining within the room a temperature of 70° the air before admission to it must be heated to a considerably higher temperature, thereby changing the relation and decreasing the apparent proportionate cost of humidifying. But it is certain, however, that there is an absolute disappearance of a large amount of heat in the moistening process that is not actually apparent in the heating of the apartment.

The Manual Training Teachers' Association of America held their first annual convention at the Drexel Institute, Philadelphia, last week. Representatives from all parts of the county were in attendance and a number of valuable papers were read and discussed.

Massachusetts courts have enjoined the Sugar Trust from doing business in that State unless it complies with the law requiring corporations to file annual statements of their financial condition.

## Press Working of Sheet Metals.—X.

BY OBERLIN SMITE.

Special Machines.

In addition to the thousands, if not millions, of members composing the army of presses in active service, an army which is constantly mustering in new recruits for newly invented purposes, to an extent almost inconceivable to the past generation, there are in use a number of modifications and amplifications of the power press proper. These may, in general, be denominated automatic metal pressing machines, and they are of almost every conceivable design and degree of complexity. Many of them are hidden in their own lairs, never coming forth in the light of public gaze. Others again can be seen in metal factories of all sorts-in the do mains of pin making, hook and eye making, button making, &c.

Such machines usually turn out so enormous a product that they themselves are comparatively few in number. Being so few and so highly specialized, it naturally follows that they themselves have not become regular articles of manufacture, but are worked out, one at a time, by a series of experiments. In many cases such a machine is but the perfected descendant of a line of ancestors, each of which has, in the course of its evolution, contributed new facts to the problem whose solution is sought -only to die in its turn and he buried in a scrap heap, giving place to some still further perfected child or grandchild, the final outcome being in some cases so marvelous a something that it seems to outvie human brains and fingers in the perfection and rapidity of its work. Naturally, enormous sums of money have been spent upon develop-ing machinery of this kind, and many wise and skillful mechanicians have been tempted to contract, for a fixed sum of money, to produce a perfected machine which has in the end cost perhaps ten times as much. Such money is generally well spent when the final result has been obtained, but is ill spared by the unlucky originator.

Pertinent to these facts, a piece of advice may be given to all inventors of special machines, which is to allow the owners thereof to furnish all the capital, while the designer furnishes the knowledge and experience. If the latter individual furnishes the money himself, as is too often the case, he will find in the end that he has not only furnished experience but has received a great deal that he did not ex-

pect.

Any mechanical explanation of the machinea referred to is, of course, out of the question, as they are too infinite in variety. It may be said in general in variety. that many of them are modifications of power presses, having not only the normal vertical ram motion, but various other rams, levers, &c., moving in other directions, as horizontally backward and forward, right and left, diagonally, &c. These motions are usually obtained by special cams, which move any given member to place, keeping it there as long as required and returning it home. Perhaps by this mancuver a cutting operation will be performed, leaving the cut blank in a certain posi-tion with a "dwell" for a certain time, while some other member approaches and does something else to it in the way probably of perforating it, bending or forming certain parts of it, &c. haps then some third member will approach and do something eise either in the way of operating upon it further or moving it to some other position. Finally, in most cases, a humble member known as a "knockout" or "pushout" will act as a hall porter and usher it forth from without the portals of the machine.

lu certain special machines, as well as in some ordinary presses, the material used has to be brought to a certain fixed temperature. This has been before treated of to a certain extent, but just here an interesting process occurs to me, which, I believe, has been re-cently patented, although I do not remember by whom. It consists of automatically heating the metal by passing a current of electricity through it as it approaches the critical position where it must be worked. This is in principle analogous to some of the other electrical processes pertaining to welding and forging, which are so rapidly being worked out. I do not know what the development of this electrical pressing may prove to be in future, but it is evidently only one of the heretofore unsupposed uses to which electricity may be applied.

FEEDING MATERIAL.

The subject in general of feeding or supplying the material to presses may well occupy a few of my closing paragraphs. The primitive, and by far the most usual, method of feeding a sheet or bar of metal to a press is by hand, the operator's muscles sometimes being guided and assisted by certain fixed sauges, as heretofore mentioned, although it is often the case that he depends upon his eye or hand alone. In some cases, particularly in heavy punching work, the holes to be punched are marked upon the sheet or bar with white paint, and in other cases the centers of such holes are marked with a center punch. In the latter case the punch terminates in a small conical point, projecting in the line of its axis, which enters the impression previously formed by the center punch. Such feeding is adapted only for slow going work, where there is time to properly adjust it. It requires, moreover, constantly vigilant attention on the part of the operator, and does not always produce very accurate results, especially when the press ram runs continuously, as is often the case. The feeding of tin plate to cutting or combination dles is usually performed by hand. This is naturally the case, as the sheets are of small size and not well adapted for automatic devices, because they would have to be replaced too often.

Automatic feeding is mostly applieable to very long sheets or bars, especially to those which are thin enough to be wound upon a reel. In this case an operator can attend to a number of presses at once, only replacing the rolls of material as they are exhausted. For such work a pair of feed rolls, operating after the same manner as a clothes wringer, is usually employed, or some. times two pairs, working in time with each other, one on each side of the dies. This double arrangement is in order that no unfed places shall occur at the ends of the sheet. The feed rolls mentioned have, of course, an intermittent motion, pushing or pulling the work forward while the dies are out of con-tact and stopping while the work is

being done.

Another popular device is known as a "reel feed." This is often used for thin metals where a number of pieces

are to be cut from the sheet at once, while the scrap remains atrong enough to hold itself together after being perforated. This scrap is wound upon a reel at one side of the machine as the uncut metal is unwound from another reel upon the other side. The spacing of the feed is in this case performed by a finger gauge which automatically enters one or more of the cut perforations. making them do their own gauging. The pulling reel attempts a slight excess of motion, the pull yielding when the fixed distance has been moved through by means of a friction slip arrangement. The supplying reel is, of course, controlled by a brake against too rapidly delivering.

Another form of feed is what may be called step-by-step, where the sheet of metal is intermittently fed by being successively gripped, pushed forward, clamped, held in place, let go of by the gripper and unclamped, the grippers meanwhile being returned to their original position ready to repeat the operation ad libitum. Such a feed is often used for sheets of cardboard in cutting playing cards, either singly or in gangs. It is especially useful for this purpose, where great accuracy is required and where no finger gauge arrangement can be used against the edge of the paper itself, on account of its inherent weakness. The same remarks will sometimes apply to certain thin and fragile metallic work.

Various automatic devices are in use for feeding partly made articles to dies whose functions are the performing of secondary or tertiary operations, &c.
These are sometimes reciprocating, but usually rotary, the most common form being an intermittently revolving wheel which, with its appurtenances, is commonly known as a dial feed. This is much used in redrawing cartridges, as, for instance, where the cups made in the first operation are placed by hand into recesses in a horizontal dial wheel revolving upon a vertical axla, the machine running continuously at a speed consistent with thus placing in the arti-cles by hand. There is plenty of room at the front of this dial, which is several inches in dlameter, for the operator to vary somewhat from an automaton and yet get a cup in every hole. Should one occasionally be missed, it of course does no harm. Each cup is brought in succession under the deepening punch, the dial stopping for a sufficient length of time for it to be pushed down through the die and for the punch to be returned above the upper plane of the dial, which then revolves through another stage of its progress, while the punch goes still further upward and returns part of the way down.

In other cases such work as this is performed by what is known as a "friction dial," whereon a number of pieces of work are stood up together in an irregular group alongside of each other, at the large end or opening of a curved wedge shaped recess, whose walls are stationary and whose bottom is the flat continuously moving horizontal disk or dial. The question as to which of the pieces of work shall get in first is somewhat a matter of chance, as they are simply all hustled forward miscellaneously-on something the same principle world's Fair. The one who happens to be ahead is pushed into the gate first, which gate, in the case of the machine in question, is a definite opening leading to a space above the lower die. When it is pushed downward, suffi-ciently operated upon and left beneath the die, then the next one is, by the same frictional action, pushed into its

Many other curious feeds might be mentioned, but those given above will answer as sufficient samples illustrating the general principles involved.

Referring again to hand feeding, the melancholy fact must be looked in the face that many of the best press operators in this and other lands may be found with mutilated hands, or as past masters of the art, with no hands at all. There seems to be a peculiar fatality in this respect, which perhaps is not so strange after all when we consider the enormous number of operations performed by these faithful men and women and boys and girls, in some cases amounting to 10,000, 20,000 (and with work even over 100,000) per day of ten hours. The worst danger is not I think usually, as might be supposed, with "continuous feeding," but occurs in cases where a power press is stopped each time by an automatic clutch, and started by the operator with the usual foot treadle. The dies and the gauging therein are often so arranged that his hand must pass between the upper and lower die each time, to locate and remove the work. He is apt to get his hands rhythmically with each other, which is all right so long as into the habit of moving his foot and his attention is not attracted pretty girls passing the window, a pack of fire crackers exploding in the street, or, worse, by a failure of the press ram to stop as usual at the top of its stroke.

It is too often the case that when some of these things happen a die descends before the fingers are out of the way, and that one or more of them is crushed or cut off. It has so far seemed to be impossible either to make presses that will not get out of adjustment (usually either through the failure of proper attention or from lack of lubrication), or to prevent operators from becoming The only real remedy is to so design dies, with automatic and other safeguards that it is impossible for any part of an operator's person to enter beween them. It is, for instance, perfectly practicable to make a stripper to inclose a punch entirely at all points of its stroke, to extend so low that no fingers can enter beneath it, and to be so thin at its bottom edge as not to be in the way of feeding. With forming dies, the way of feeding. With forming dies, &c., there is somewhat more difficulty, however.

Such providing of safeguards has been carried out in the form of a thoroughly practical system in certain factories known to the writer, but there seems to be a lamentable lack of interest in the matter by employers generally, as well as by the employees who suffer the most. The fact is that a perfect system of such safeguards is difficult to install, and is apt to be quite expensive. The experience of press and die makers is that their customers are not willing to pay for more than enough tools to actually do the work, the extra appliances required for safety not being absolutely neces-sary. In many cases such devices are difficult to design, as any particular die may perhaps require a new system con-trived especially for it. For gradual improvements in this important field it is to be feared we can only look to the future, as we must also for the expensive safeguards needed to protect our much smashed up railway employees. Public sentiment and its consequentlal legislation will, after a while, do this

Power Required.

The horse-power required to drive a press is usually quite small in com-parison with that absorbed by many other machines of about the same general size. This is because the speeds are comparatively slow and the strokes, which do the hard work, are intermittent. Again, we have in literature few, if any, definite data based upon dynamometrical tests of actual work.

An approximate estimate of the power that a medlumly tight driving belt of a power press can supply may be made by the old rule of multiplying the diameter of the driven pulley (which oftentimes is the fly wheel also) by its width, both in inches and by Its revolutions per minute, dividing the product by 4000, the quotient from which will be the horse power. Such result may be discounted quite freely by guess—say from 25 to 75 per cent. This is to allow for the halcyon moments of waste time, so to speak, between the down strokes of the ram, when the belt is doing almost nothing except, indeed, at certain times to restore the depreciated speed of the heavy fly wheel that is (or ought to be) present in every such machine, in order that a part of the power may be freely stored therein for each critical time of need. The discount referred to will be greater in instances where the main shaft is stopped after each stroke by its clutch-because in such case the ram will be actually at work during a less proportion of its total time than with a continuously running shaft. The observer must judge in each particular case as to how much of the time actual work is being done in overcoming friction or otherwise. Of course much better than all this would be the use of a good recording dynamometer (could a suitable one be obtained), from whose records the power used could be averaged.

The wonderful development of some of the various processes involved in the art which is the subject of this treatlse has before been referred to. It is a well-known fact that our commercial metals are all the time being developed into a more suitable quality and form for being acted upon by dies, and that hundreds of inventors are busily at work contriving new devices for the household, the ship, the farm, the road, and every other department of human activity. Moreover, the tendency is constantly to cheapen and unify various parts of these devices, striking them out in dies from malleable material rather than producing them by the older processes of hand forging and casting. It is impossible to predict how far this line of development may go on in the future, but at present the prospects seem to point toward a more thorough and frequent use of the processes in question

as the years go on.

Unquestionably very many articles of common and necessary use, which serve to add to the pleasure, convenience and consequent happiness of mankind and womankind, too, have been increased in number and improved in quality by the facility with which they can be produced in presses and dies. Truly, if the man is to be commended who can 'make two blades of grass grow where grew one before," how much can be said of those men whose toiling brains and hands are providing the means by which not two only, but 2000 useful and beautiful things can be furnished to the waiting multitude for a price at which but one could be obtained by their fathers and their grandfathers!

THE END

# THE LETTER BOX.

#### Tank for Roof.

From A. A.-I would like to be Informed how to make a wooden water tight tank to be placed on a roof and what material should be used.

Answer.-Wooden roof tanks can be made round, with the lower end alightly larger, thus enabling the iron hoops to be driven on and compress the ataves so water tight joints will be the result. The bottom of tauk can be made of 2-inch pine plank, the edges nicely joined, and the outer edge alightly beveled, so as to fit tightly into corresponding grooves cut near the bottom of the staves. The staves can also be made of 2 inch pine planks of convenient width, the edges being properly beveled so as to make a close joint. Such a tank, when properly constructed and of well seasoned materials, should be water tight.

#### Soldering Fruit Cans.

From P. H., New Madrid, Mo.—Do tinners use acid for soldering fruit cans? Is acid generally used in canning factories for soldering fruit and vegetable cans?

Answer .- By "acid" it is supposed our correspondent refers to the usual soldering fluid composed of muriatic acid and zinc. This fluid is sometimes used by tinners and in factories for soldering cans, but is considered objectionable by many, as it is liable to be used in such a manner as either to discolor the cans or cause them to corrode. Again, if there was any of the acid left in the cans it would be liable to injure delicate fruits and vegetables. If the cans are to be soldered by hand, powdered rosin can be used, and if the soldering is to be done by machinery there are a numher of soldering fluids on the market that are used by canners.

#### Pattern for Flaring Article.

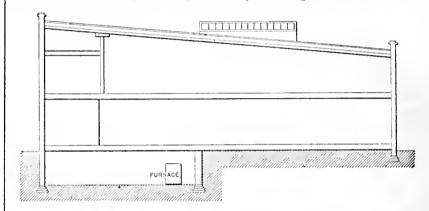
From X. Y. Z.—I would like to know the shortest and most accurate method for obtaining the length of the pattern for flaring work of any size in one piece.

Answer .- In The Metal Worker of November 4, 1893, was published an article descriptive of the method employed in obtaining the pattern for a flaring article, the pattern being in four pleces. It is obvious the same method is to be employed in obtaining the pattern for an article of one piece. Our correspondent is also referred to the solution of the problem as presented on pages 100 and 101 of "The Metal Worker Pattern Book."

#### A Rearranged Heating System.

From Cornice, Louisville, Ky.-We inclose you a section and floor plans of a building and some other details and correspondence relative to our experiwith a warm air furnace. aubmit this for publication in your paper believing it will be of benefit to the trade. Fig. 1 shows a longitudinal section of the building and Fig. 2

last winter, the first winter we used it, it failed to perform what we think it should. We think it not so much the fault of the furuace as the parties who set it, and we wish to get some luformation from you, and will proceed to remedy the defects ourselves. The amount of space to be heated is 98,000 cubic feet, and the cold air inlet is only 12 x 29 inches. The united area of all the pipes leading from the furnace is 1026 square inches. We wish you would send us (at once) one of your catalogues giving information as to settings, pipe, cold air duct, &c., also any additional information that you can suggest. We used 750 bushels



A Rearranged Heating Plant.-Fig. 1.-Longitudinal Section of Building.

shows the plan and the furnace piping | as it was used.

During the winter of 1892-93 the furnace had to be driven to auch an extent that the fire bowl was burned out and the heat was so intense at the base that the tin lined galvanized iron casing was heated until the coating was burned off the bottom both inside and outside; at the same time, if we opened the dampers full in two of the largest pipes the other pipes received compara-tively little heat, so that the shop sufof coal last winter. An early reply will oblige Yours respectfully, CORNICE.

The following letter is the answer we received:

Messrs. Cornice, Louisville, Ky.:
Gentlemen—Your letter of the 30th ult.
at hand. You state that you take 1026
square inches of air from furnace; this is
altogether more than we would guarantee
our No. 1 furnace to do. For the amount
of work you have, we judge that our No. 2
furnace would be about right. The fire pot
is 35 inches in diameter, casing 65¼ inches
in diameter. We would recommend size of

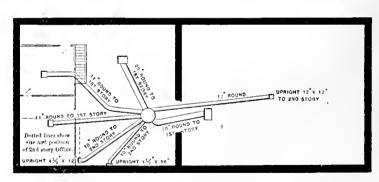


Fig. 2.—Showing First Method of Piping.

fered when we attempted to keep the office warm. In addition to this, about the middle of the afternoon the men were all complaining of headache. Determining to remedy this before another winter, on September 30 we wrote the manufacturers of the furnace thinking they would take sufficient interest in the matter to advise us fully what to The letter herewith shows what do. we asked:

LOUISVILLE, KY., September 30, 1893.

MESSES —. GENTLEMEN.—We have in our building one of your No. 1 hot air furnaces, and

cold air supply for our No. I furnace about 550 inches; your box contains only 348. The No. 2 furnace will take care of 700 square inches of cold air. If you could fill out the inclosed we would have a better idea as to what you would require. We have no book giving directions for setting. Yours respectfully,

Now we had no experience in furnace setting, but we proceeded to dismantle the furnace, and after getting a new fire bowl began the setting; we in-creased the capacity of the cold air duct to 660 square inches and reduced the

July 28, 1894

united areas of the hot air pipes to 760 We made a new casing souare inches. and crimped the metal 3 inch crimps, running the crimps horizontally in the galvanized iron and vertically in the tin lining; this left a little apace be-

The result of our efforts is as follows: From five thermometers located in different parts of the building on the coldest days we had last winter we maintained a temperature of 66° in the most remote parts of the building and

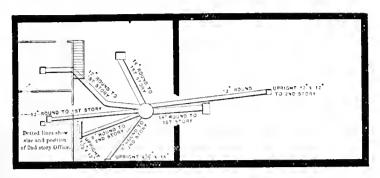


Fig. 3.—Showing Rearranged Piping.

tween the two; in addition to this we | made a hood 1 foot larger than the outside casing, this resting on top of the pipes and from this we led off an 8-inch, pipe. We also put a casing around the amoke pipe, leaving an annular space of two inches all round, and

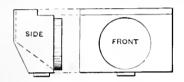


Fig. 4.-Original Pipe and Flue Connections.

led off a 6-inch pipe from that. From these last two pipes we obtained sufficient heat to remunerate the expense.

Fig. 3 shows the rearranged system of piping.

Fig. 4 shows how the connection of the horizontal pipe was originally made

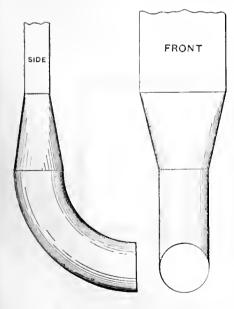


Fig. 5.—Rearranged Connections.

to the upright heating flues, and Fig. 5 shows the rearranged connection. Fig. 6 shows the original register box and Fig. 7 shows the register box as now made. The connections are all arranged to let the air flow with less friction and to permit a greater volume to pass at different points where turns are made and obstructions met.

72° in the office: we consumed only 450 bushela Pennsylvania bituminous coal as against 750 the previous winter, a pleasant, agreeable atmosphere in the

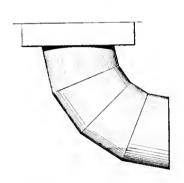


Fig. 6.—Originat Register Box.

building all the time and no complaint from the men of headache.

#### Tinning Malleable Castings.

From R. G. O., Manitowoo, Wis.— I take the liberty, as one of the subscribers of The Metal Worker, of asking for a little information regarding the tinning of malleable iron. What kind tinning of malleable iron. of acid is used, and is it raw or boiled? Are the castings heated after being dipped in the acid? Is anything added to the block tin for tinning, and how hot should it be?

Answer. - Before the castings can receive a coating of tin it is necessary to remove the coating of scale or oxide, so the clean metal will be exposed to the tin. The castings are usually partly cleaned by means of the "rattler," which removes much of the scale. They are then to be placed in a pickle of dilute muriatic acid until a clean surface is the result. If the pickle is warmed by means of a steam jet, the operation will be hastened. The castings can be examined occasionally while in the pickle, and any sand or black spots removed by means of a scraper or wire brush. The castings can then be washed, and if desired, kept for a length of time by being placed under clean water. As long as they are covered with water they are not subject to oxi-

dation. For a tlux, the castings are dipped in a mixture composed of four parts of a saturated solution of salammoniae and one part of muriatic seid. "Boiled" acid, as that combined with zine is sometimes called, is not to be used. For tinning, the best block tin is required, and this should be melted in an iron pot, care being taken that it is not burned or overheated in melting. After the tin is melted, it can be cleaned of impurities by taking a piece of green or wet wood secured to a pointed iron rod, and fastening same so the wood will be kept at the bottom of the pot of melted metal for one or two hours, depending on the amount of impurity in the metal. The surface of the metal is to be akimmed occasionally by means of a perforated iron skimmer. To protect the surface of the metal from oxidation, it can be covered with sal ammoniae. There is nothing to be added to the tin. Another method is to cover

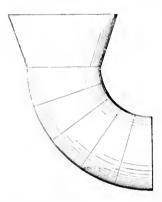


Fig. 7.-Rearranged Register Box.

the aurface of the tin with tallow or palm oil. The casting is taken up by means of auitable tongs, dipped in the flux, and then immersed in the melted tin and held for a sufficient time to allow the surface to be tinned. The tin should not be so hot as to discolor when the casting is removed. If deaired, the casting can be held for a time in another pot, which is to be partly filled with tallow or palm oil and kept at a temperature that will melt cold tin. This bath of grease will allow the casting to retain an even coating of tin, and allow any auperfluous metal to drain off. The castings can be cleaned from the grease by first rubbing in sawdust and then in bran.

According to a recent consular report, the decree issued by the Government of San Salvador, imposing an additional duty of 25 cents per 100 pounds upon all imports, does not apply to products of the United States.

United States Minister Buchanan reports the present year's wheat crop of Argentina to be phenomenal. The increase in acreage over last year la estimated at 20 per cent., and the yield per acre has also increased. It states that 36 000,000 bushels were exported during the first three months of this year, and there atill remain in atore for export 30,000,000 bushels.

# PLUMBING and GAS FITTING.

## Gas and Gas Fitting.—IV.\*

BY J. W. HUGHES.

#### Connecting the Meter in Buildings.

In most cities the gas is introduced directly into the buildings to be lighted by the gas company. For an ordinary dwelling the usual size of a service pipe, as the pipe leading from the street main to inside the building is called, is 1 inch. It is generally wrought iron pipe with screw joints, put together with the ordinary socket or buckle, and made tight with red lead. Sometimes a stop cock is fitted in the service outside the building for the purpose of cutting off the supply, but in many towns this is omitted, the pipe inside the house being merely closed with a cap.

When the gas fitter comes to make the final connection between the gas company's service and the house pipes, he removes this cap, having first prepared a proper fitting with a nipple and cock to screw on the end of the main or service. The proper fitting to use is a T with a plug in one end. In cold climates it is customary to fit to the end of this T a cock to which a small funnel is attached. This is for the purpose of introducing alcohol to thaw out the main should the flow of gas become di-minished by the accumulation of frost in the service. Gas does not freeze in the same way that water does—that is, into solid ice—but during severe and long continued cold spells frost gathers on the inside of the service, similar to that which gathers on the inside of the window glass, and for the same reason. The moisture carried by the gas is con-densed on the sides of the pipe in such quantities as to sometimes completely obstruct the flow of gas.
"Highwinea" or alcohol introduced

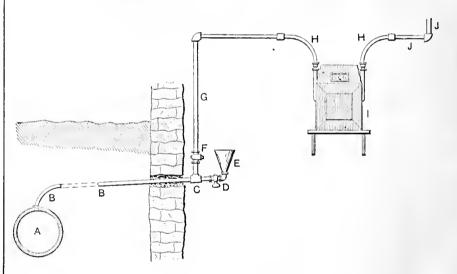
"Highwinea" or alcohol introduced into the pipe cuts this away, and if the service has been laid with ample fall from the house to the street main, it runs off into the large main and from there to the various siphons placed at intervals along the line of the atreet mains, from which it is periodically pumped by the gas company men, along with the ordinary liquid of condensation that forms in the mains and which is known to the general public as gas water. Should there, however, be a depression or trap on the service the alcohol will lodge there and as a result there will either be no flow of gas or it will come in jerks or jumps, causing the flame at the burner to jump up and

This jumping is also caused by the ordinary liquids formed by the condensation in the gas. The proper and only thoroughly effective remedy for this is to dig up the service and lay it so as to be free from traps or depressions. The trouble may be temporarily cured by removing the plug or funnel on the end of the service, and having fully inflated the lungs, placing the mouth over the opening made by the removal of the plug and blowing strongly into the service until the accumulation

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of liquid is blown out of the trap and back into the main pipe. This is not the most pleasant job for the gas fitter, but it is a prompt and handy method of getting rid of the trouble. When no getting rid of the trouble." plug has been left a joint may be unscrewed or the key taken out of the stop cock, or the coupling may be taken off at the meter and the alcohol be introduced at any of these points, as most convenient, and the blowing out be done from there if necessary. It sometimes occurs that the force of the lungs is not sufficient to free the service from the accumulated liquid. Then a force pump must be used, or a wad of rag, well greased, can be attached to the end of a strong wire and this be forced into the service to a point beyond the line of obstruction. If this is not possible, a closely fitted wad of rag firmly attached

Having attached the stop cock to the main inside the house, it is next in order to carry the service to the vicinity of the meter. The final attachments between the street service, the house main and the meter should be made with a short length of lead or "compo" gas pipe. The meter should not be connected direct to the iron pipes. This is something often done, but unless great care is taken to have the different parts or joints come perfectly together without spring, a strain is put upon the meter it is not strong enough to stand, serious injury to the meter is almost certain to result, whereas if a short piece of "compo" is used at the meter, it can be much more easily handled, and there is leas likelihood of damage to the meter from the aforementioned cause. The meter



Gas and Gas Fitting .- Fig. 12.-Meter Connections.

to a wire will answer all the purposes of a force pump.

When working at gas pipes with gas on, as is sometimes necessary, especially in executing any of the aforementioned work, great care must be taken to prevent the gas taking fire. No light should be anywhere in the vicinity, and as the services are frequently situated as the services are frequently situated in dark cellars it adds to the awkwardness of the work. For this reason everything in the way of a most perfect preparation should be made and the light removed before any pipes are opened. Fittings should be tried to make sure they will second on to the make sure they will screw on to the pipe, so that a man working in the dark will not be unnecessarily embarrassed. It is always better to open a window to the outer air while such work is being done, and even after the special work has been accomplished a light must not be brought into the apartment as long as there is a strong odor of gas, as gas in the proportion of seven to eight parts of air to one of gas is highly explosive, and enough will accumulate in a few minutes in a cellar to form an explosive compound of sufficient force to wreck the building.

couplings are usually made from "compo" connections. The end of the "compo" pipe that is to be attached to the iron pipe must be soldered into a proper brass serew tail, or brass bush, for screwing into the iron pipe fittings. The meter connections described above are shown in Fig. 12. A is the street main; B B, house service; C, the T on end of service; D, amall cock attached to funnel E; F, main stop cock; G, continuation of service to meter I; HH, "compo" pipe connections to meter; J J, house main.

THE ETTE & HENOER MF6. COMPANY, St. Louis, distribute a pamphlet of eight pages to be inserted in their catalogue No. 5, which was recently issued. The pamphlet contains illustrations of a new iron and a new brass bracket, which are made in several sizes, and as the manufacturers inform us, are finely finished. Illustrations are also given of the National and Globe traps, the National basin waste and National bath waste. A line of brass towel racks, sponge and glass holders and brass, nickel plated soap cups are also shown.

#### Water Closet Reservoir.

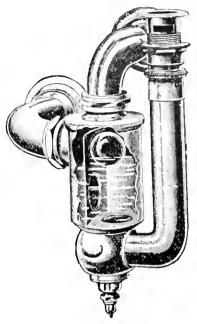
McCambridge & Co. of Philadelphia have just patented the water closet reservoir shown in the accompanying cut, the invention of Geo. B. Howell, a

member of the company.

The main feature of the invention is the combination of valve mechanism with a reservoir in such a manner that the valve operating rod or chain can be discovered in any position which the be disposed in any position which the location of the bowl of the closet may suggest as the most convenient.

ment of the rock shaft in one direction is limited by lugs on the front end of the shaft and the adjacent bracket, thus preventing contact of the valve arm with the top of the overflow tubes. The upper chamber has lugs on either side for receiving the cheat of the supply valve so that the chest may be mounted close to the wall in either po-sition of the chamber. Around the lower discharge valve is a low casing or wall with openings of limited area near the bottom so that when the water in the service chamber has fallen to the

The trap is constructed with a partition having a hole in it, so that in case of siphonage the ball is drawn against the opening, preventing the breakage of the water seal. If the trap is left un-used for a period long enough to evaporate the water, leaving it dry, the ball



Sink and Basin Trap.

Water Closet Reservoir.

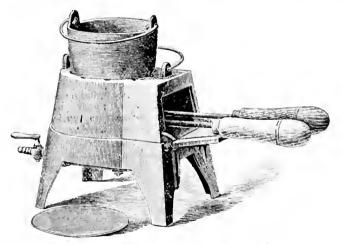
cut shows a broken veiw of the supply reservoir. It consists of two casings, a main or outer casing and a supple-mentary casing, forming two chambers, the upper serving as a receiving cham ber and the outer as a supply or service chamber. The two chambers comchamber. municate by means of the valve shown in the left of the cut, and the service chamber discharges through the branch controlled by the outlet valve. The ends of the rock shaft, to which is attached the arm operating the valves, are adapted to suitable bearings in brackets secured to the upper flanges of the inner chamber, so that when the shaft is operated the delivery valve will open and discharge the water from the service chamber, and at the same time close the valve of communication between chambers. A reversal of the shaft movement closes the delivery valve and opens the communicating valve, so as to allow of a refilling of the service chamber from the upper chamber. The rock shaft is provided with an operating arm to the end of which is connected a de-pending rod or other valve operating device, and either attached to the seat in such a way as to make the operation automatic, or attached to an ordinary chain pull. The discharge outlet and its valve occupying a cental position in the service chamber the rock shaft may be located on either the right or left hand aide of the valve, the inner chamber being readily removed and turned end for end to permit of such arrangement. The hub of the operating arm may be adjusted to different circumferential positions on the rock shaft and secured, after adjustment, by a set screw. The arm may also be adjusted longitudinally on the rock shaft so that it may assume any position between the end of the shaft and the central valve operating the arm. The valve arm is operating the arm. usually placed at the middle of the shaft when the chamber is turned end for end the same arrangement will suit the valves. The swinging move-

level of the top of the casing or wall further flow will be through the openfurther now will be through the openings, thus providing a slow after flow for filling the traps of the bowl after siphonic action has ceased. In operation, pulling of the operating arm releases the water in the inner chamber and the service chamber provides the and the service chamber provides the flush. During the flush the inner chamber again fills and is ready for another flush. There is always a flush ready at hand. The company have used the reservoir for some time in their own

ainka and closes the opening leading to the fixture, thereby, it is claimed, preventing the entrance of sewer gas into the house. The trap is furnished with an improved patent overflow basin and trap connection, doing away with the old style overflow basin plug.

#### The Enterprise Gas Soldering and Plumbers' Stove.

The accompanying illustration shows a general view of the Enterprise gas aoldering and plumbers' stove, just put



Enterprise Gas Soldering and Plumbers' Stove.

work, particularly in hotel and other large contracta where automatic service is required.

### Sink and Basin Trap.

We show in the accompanying illus-We show in the accompanying litteration a patent sink and basin trap made by William Kerr, 507 Detroit street, Cleveland, Ohio. The trap is provided with a ball, which fills the back air vent, preventing its stoppage by grease or other matter entering should the trap by any means be flooded.

on the market by Luther & Lederhos, 30 Cliff street, New York. The general appearance of the stove is made plain in the engraving, from which it will be seen that two soldering irons and a plumbers' melting pot can be heated at the same time. The gas connection is at the back of the stove, as indicated. There is also a lid for closing the top when the melting pot is not used. The consumption of gas is about 10 feet per hour and the stove will melt a pot of solder in from eight to ten minutes. It also heats 4-pound coppers in from eight to ten minutes. It heats very quickly and there is said to be no smoke or smell.

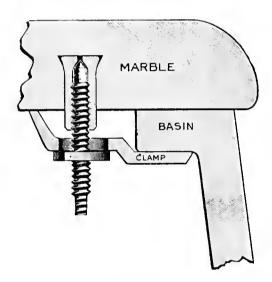
# Calkin's Patent Expansion Bolt.

We present in the accompanying illustration a view of Calkin's pstent expansion bolt, made by T. J. Mcllugh, 292 Washington street, Boston, Mass. The bolt is intended for use in securing fixtures to marble slabs. In setting the device it is merely necessary to drill a hole the size of the bolt, and then with a cutter specially made for the purpose, and supplied by the same manufacturer, the bottom of the hole is reamed out. increasing its diameter, the bolt being threaded in the center to receive a screw with a nut. It is also slotted at four different places, and the hole in the device so tapers to a point that when the screw is inserted the bottom of the bolt, expanding in the hole, becomes so secure that it is said to be practically impossible to withdraw it. It is claimed B. T. Connell of the B. T. Connell Plumbing & Heating Company, St. Joseph, Mo, and George Kirtley of Kirtley Brothers, Kansas City, are looking over the ground with a view to eatablishing a business house in Sedalia, Mo. It is reported that they will handle a full line of fancy and ornamental sanitary fixtures, and do a general steam, hot water and plumbing business.

THE JAMES B. SMITH PLUMBING & HEATING COMPANY have been incorporated at Cleveland, Ohio, with a capital of \$25,000.

WILLIAM N. TOPHAM has removed his plumbing establishment from 110 East Chelton avenue to 5623 Main street, Germantown, Pa.

Jules E. Zimmerman of the Ideal Mfg. Company, Detroit, visited the plumbing and heating trades in Boston this week. The auperior atyle and finish of the Ideal closet seats and flush tank render them very popular in this section. Another specialty of the Ideal



Calkin's Patent Expansion Bolt.

that the bolt can be quickly set, making a very substantial job. The illustration shows a lavatory slab attached to a basin by a spring clamp held in position by one of these bolts. The spring clamp keeps the basin in position, affording sufficient elasticity to prevent the breakage of the earthenware.

#### TRAPS AND VENTS.

A SIN STORY BRICK AND STONE BACK BUILDING, 15 x 20 feet, is to be added to the plumbing establishment of Watson & Pearle, Chestnut street, above Seventeenth, Philadelphia.

The Zero Valve Company, 212 Seneca street, Buffalo, N. Y., are issuing their first catalogue to the plumbing trade. It is bound in brown covers and its pages present views and descriptions of the Zero and Vollmer anti-freezing closet valves for use in connection with outside water closets. The Vollmer closet sent is a lift seat made of highly polished cherry, strengthened by a circular malleable iron ring, and adapted to be connected with hopper water closets. It can be quickly connected and requires no other wood work in connection with the closet.

H. F. WEEKS has associated himsell with the Hinekley Brothers, at Barre, Mass., to carry on the tin and plumbing business.

Mig. Company are the Ideal quick closing valves for use in hot water heating, which find a good market in Boston.

KINO & GODDARD, 64-66 Purchase street, Boston, make a specialty of pipe fittings, pumps and hose, and in addition, carry a full line of plumbers' supplies. They are distributing a neat little memorandum book, bearing the inscription: "When this is used up call or send for another."

THE STHSON wrench and Walworth pipe dies are too well known to the trade to need extended description. They, however, comprise but a few of the varied lines of goods adapted for the plumber and steam fitter manufactured by the Walworth Mfg. Company of Boston.

THE ALBERENE STONE COMPANY, 217 Lake street, Chicago; 393 Pearl street, New York, and 162 Dover street, Boston, have just brought out an exceptionally fine catalogue of their specialtics. They make laundry tubs, sinks, urinal stalla, tops for dissecting tablea, acid tanks, oil vats, nickel plating troughs, horse troughs, &c., of a peculiar stone quarried at Alberene, Va. This atone is of a gray color, having a fine close grain of uniform density, wears as smooth as polished marble, and is peculiarly fitted for sanitary work by its non-porosity, strength and durability. The catalogue comprises 36 large pages, with handsome illustra

tions and letterpress, printed on heavy paper, and is bound in a stiff cover, dark blue in color, with embossed lettering in white. Of the contents, laundry tubs are the conspicuous feature. These are shown in a great variety of sizes and styles. Then follow combination kitchen sinks and laundry tuba in considerable variety. Kitchen sinks are next shown, designed for clear wall spaces or right or left corners. Some have single drain boards and others have drain boards on both sides. The convenience of the country resident is conaulted by a special form of sink with a board for a pump stand at one end. Urinal stalls receive considerable attention, as well as miscellaneous specialties. The stone is stated to be adapted to a great number of uses, such as hearths, grate liuings, range linings, bakers' oven linings, griddles, foot warmers, tubs for electric baths, awitch boards and cut outs for electric use, &c.

THE DECECO COMPANY, Boston, have their showroom attractively arranged, samples of their plumbing specialties being displayed to the best advantage. On one side of the room the floor and wall is tiled, and various atyles of their water closets are set up with water connection, for the purpose of showing their operation. At the opposite side of the room are displayed varied styles of lavatories and lavatory fixtures, the central space being occupied by a collection of porcelain and enameled baths, laundry tube, slop sinks and urinals.

The anniversary edition of the Binghamton Morning Message, Blnghamton, N. Y., contains a complimentary notice of the firm of Gaylord & Eitapence, the well known heating contractors of that city. The business was established in 1889 by W. H. Gaylord and L. F. Eitapence, the present proprietors, who have built up an extensive trade extending throughout a large section of New York and Pennsylvania. The article refers to many of the big contracts that have been undertaken by this concern.

REPORTS in the local journals of Dubuque, Iows, speak of the large amount of plumbing and steam heating work that is being done in that city at the present time, due to the discontinuance of the steam heating company, which supplied several hundred stores, residences and offices with heat.

THE MASSACHUSETTS ASSOCIATION OF MASTER PLUMBERS have elected the following officers: President, Frederick Crossman of Florence; vice-president, T. J. Carmody of Holyoke; secretary, A. C. Mosely of Westfield; treasurer, J. W. Kennely of Springfield; Executive Committee, G. H. Farrel of Westfield, A. B. Lee of Northampton, C. P. Lyman of Holyoke, M. A. Donoghue of Springfield.

JOHN L. E. FIRMIN, a leading plumber of San Francisco, has been making an extended trip to the East, stopping, among other places, at Milwaukee, where he visited the trade.

According to the Wall Street News, the water works supplying the principal cities and towns of the United States represent an investment of \$430,000,000, or nearly one-tenth as much as is invested in railroads. The total number of cities and towns in the whole country supplied with water works is about 1700. Of these, eight Southern States only include 68 water works. About two-thirds of all the works belong to the municipalities, the balance being private enterprises.

# TIN PLATES.

## The Decrease in Tin Plate.

The British Board of Trade returns for the month of June, 1894, show a falling cff of about 38 per cent. in the shipments of tin and terne plates from Great Britain to the United States during the first half of this year, as compared with those in the corresponding period of 1893. For the six months ending with June 30 last the total shipments of tin plates and sheets are given as 100,364 tons, as sgainst 160,420 tons in the half year ending June 30, 1893, a decline of more than 60,000 tons, or nearly 1,000,000 boxes of IC, 14 x 20. This serious contraction is, of course, largely to be attributed to the generally depressed state of business in the United States during the past six months and, above all, to the condition of uncertainty in regard to tariff legislation, under which the tin plate trade has been laboring for so long. Importers have in most cases narrowed down their orders to the smallest margins, in view of a possible reduction in the tin plate duty, which would enable them to enter their goods at a lower rate, and consumers at large have followed a similarly conservative course in buying no material beyond what their pressing needs demand.

Consequently, consumption has narrowed materially and stocks on this side have become reduced to a very Yet there is no evidence to low ebb. show that the consumption of tin and terne plates this year has shrunk to the extent of snything approaching 38 per cent. of the average. On the contrary, 20 or, at the most, 25 per cent is the outside shrinkage calculated by dealers and jobbers. The difference must be accounted for by the using up of old stocks and the adoption of the domestic product, which, it is scknowledged, has assumed a position of more and more importance in the market during the current year. The frequent diffi-culties which have been experienced by consumers in getting their orders for special brands of imported plates filled, owing to the slender stocks recently carried by the importers, have in many instances thrown the sometimes unwilling consumer back on the American made material, which he has thus had perforce to use, often for the first time, and has subsequently learned to appreciate. Thus the decrease in the importation of foreign plates has been a dis-tinct gain to the home manufacturers. Of this they have not been slow to avail themselves, for in strong contrast to the importers they have nearty all been busy to their utmost capacity and generally have reported a good and growing demand for their product during the past months of business depression.

#### SCRAP.

THE PLANT of the Canonsburg Iron & Steel Company, Canousburg, Pa., manufacturers of fine sheet iron and sheet steel, was closed down on Saturday, June 30, for stock taking and repairs. It is expected the entire plant will resume operations about August 1 next, and the new tin mill recently

erected by the firm will be put in operation at the same time.

THE PITTSBURGH TIN PLATE WORKS, New Kensington, Pa., msuufacturers of American tin and terne plates, have been succeeded by the Pittsburgh Tin Plate Works, Incorporated, which coucern were recently granted a charter of incorporation, with a capital of \$100,-000. The officers are as follows: Chas. Parkin, president; C. W. Tindle, vice-president; W. P. Beaver, scoretary; W. N. Voegtly, tressurer, and J. B. Strawbridge, general manager. As already noted in these columns, the new concern have let contracts for the erection of suitable buildings and machinery, and when these are completed will manufacture their own sheets for tinning purposes, instead of buying them in the open market as heretofore. The main building is to be 140 x 100 feet, boiler house 45 x 35 feet, and pickling house 40 x 30 feet. The engine is a Hamilton Corliss, with cylinder 36 x 72 inches and fly wheel weighing 60 tons. The plant now under construction is designed for three hot mills, with a view of enlarging to six when desired. It is stated that the plant will be of the most modern design, and the best in arrangement that can be secured. It is hoped to have the work now under way completed by October 1, and with that end in view a large force of workmen have been engaged and are pushing the construction as fast as possible.

SHIPMENTS of tin and terne plates from Great Britain to the United States in the month of June, 1894, according to the British Board of Trade Returns, were 17,247 tons, as compared with 21,-291 in the previous month and 26,759 tons in June, 1893.

Work is precessing actively on the building for the new tin house to be attached to the rolling mill of the Laisnee & Grosjean Mfg. Company, at Harrisburg, Pa. Orders have been placed for the necessary tinning machinery and for cleaning and dusting machiner, &c. These will be ready to be installed as soon as the building is completed. Six tinning sets will be placed in operation as a commencement, and space will be provided for ten more pots, which will be added later. It is the intention of the firm to make this a complete modern tin plate plant, possessing all the latest improvements in the way of labor saving machinery. They expect to be in shape for making tin plate about September 15.

MEURER BROS. COMPANY'S TIN PLATE WORKS in Brooklyn are very lully cocupied on orders. Six sets are now in operation—five on ternes and one on bright plates—turning out an average of 325 boxes daily. For the present the works are only running on single turn, but Messis. Meurer are contemplating starting a night shift ou account of the press of orders for their guaranteed roofing plates, which have attained great popularity in the trade. The output of tin and terne plates from the works during their first whole quarter—that ending June 30—was 982,000

pounds. It is the intention of Messrs. Meurer to install four more tinning sets shortly and to make some considerable improvements and additions to their plant, including an automatic steam pickler and other labor saving machinery, now in course of construction.

Aluminum Castings .- We have received from the H. H. Franklin Mfg. Company of Syracuse, N. Y., a number of samples of small aluminum castings, which show marked progress in this class of work. We understand that they have been produced by a new process. Among the samples is a gear wheel, 11 inches in dismeter, with 36 teeth, which are sharp as though cut. A rack and a ratchet wheel, both cast, have some of the surfaces beautifully polished. The makers claim that they have overcome the difficulty of shrinkage and that they can make castings from a fraction of an ounce up, accurate and to size. We are informed that on many lines of work the finished product in sluminum, even at the p-esent price of the metal, can be produced highly polished cheaper than the same article can be made and finished and plated in brass. The H. H. Franklin Mg. Company produce these castings from pure aluminum, but when it is desirable to avoid the danger of scratching polished surfaces, the work can be produced with any hardening alloy. It is probable that there is a wide field for small castings of this character.

The City of Brooklyn is threstened with a shortage in its water supply. This week, after a lengthy discussion of the matter, the Board of Aldermen voted the appropriation of \$750,000 for increasing the supply. The Commissioner of Public Works has advertized calling for proposals for the work.

A local paper published at Washington, Ill., describes an invention of G. C. Danforth and William Sencendaugh for increasing the flow of natural gas where the original pressure is insufficient to give a continuous flow. The device is known as a combination natural gas vacuum pipe pump, lujector and mixer, and is, we understand, being auccessfully used on three light pressure wells in Washington.

The House has passed a much needed bill, introduced by Representative Stone of Pennsylvania, to regulate immigration. It provides that no immigrant shall be permitted to laud unless he shall exhibit a certificate signed by the United States Consul or other representatives of this country at the place nearest where the immigrant last resided, showing that au investigation concerning the immigrant has been made, and that the latter does not belong to the class of persons who are liable to become a public charge. The strict enforcement of a law of this character would do much to remove the evils arising from the admission of undesirable foreign immigrants.

# STEAM AND HOT WATER.

#### Class in Steam and Hot Water Heating.

The following particulars relating to the new day class in steam and hot water heating at the New York Trade School, First avenue, Sixty-seventh and Sixty-eighth streets, New York, are given in the catalogue of that institution, just issued, for the sesson of 1894 95:

A three months' day course of instruction in steam and hot water heating will be commenced on January 2. 1895. Certificates will be awarded on April 4 to those who pass the examination, which is held during the last week of the term. The instruction will Certificates will be awarded on be given every day from 8 a.m. to 4 p.m., except on Saturdays, when the school closes at 2.30 p.m.
Terms: Forty collars for the course,

paid when name is entered. Good hoard can be had at \$5 per week. The class in steam and hot water heating will be under the supervision of the Trade School Committee of the Master Steam and Hot Water Fitters' Association of New York, consisting of Messrs. John J. Smith, S. J. Geoghegan, Enoch Rutzler, J. D. Clarke, James Curran and Charles J. Gillis.

The instruction will be both practical and scientific. The manual part of the course will comprise work of the same nature as is done in establishments conducting a business of this character. The theoretical part of the course will be given by means of lectures, in which the scientific principles that form the basis of the construction of heating systems will be thoroughly explained. A part of this course will consist also of the drawing of plans. On each plan that is made the pupil will be required to show how the piping is to run, where the radiator or heating coils should appear and the proper place for the boiler or heater; also to give the sizes of pipes required, fittings, &c. Then from plans so prepared the work itself will he done.

#### English Heating Practice.

From an interesting paper on the "English Practice in Heating and Ventilation," read by David M. Nesbit of London at the recent New York convention of the Master S:cam and Hot Water Fitters' Association of the United States, we print the following extract:

To make this paper interesting to you, I have thought of many subjects, but as I feel more of a student than a professor, I have come to the conclusion that a review or retrospect of the warming and ventilating profession in England as I have known it during the last 20 to 25 years would be most interesting.

It is undoubtedly a blot on our En-

glish race, nay, civilization I might say, to have allowed this matter of warming and ventilation to be neglected for so many years, but I am glad to be able to tell you that, with the close of the nine-teenth century, better opinions prevail

and better warming and ventilation is much sought after.

The people themselves, the Government, and their representatives, are now compelling employers and public bodies to see that their workshops, public buildings, schools and other institutions are better warmed and ventilated than they used to be.

This is a sign of the times, but we have much to do before this humanizing effect becomes general, and I am afraid that pecuniary interests, private enterprice and trade nostrums militate much against its general adoption, but as surely as I am in New York to day compulsory powers will eventually come into force and aweep away those devices which are only a snare and a trap for the unwary.

In England, or, properly speaking, Great Britain, I might say we are pass-lng through the "transition" state of

warming and ventilation.

In the early part of my career it was considered quite good enough to run 2, 3 and 4 inch plain socket and spigot piping all round the rooms of our schools and other public buildings, with additional "box coils" for additional heat where required. These were used mainly in conjunction with low pressure hot water systems, and some of the best buildings built two or three decades ago are heated in this manner, without (in many cases) a vestige of ventilation whatever.

To say the least, this system was not artistic, scientific or very architectural, but it was the custom, and the latter had to be maintained too often at the

cost of injury to health.

The principles of ventilation in Great Britain were little understood except to the few men whom I consider were the pioneers of the better systems of warming and ventilation.

To such men as the late Drs. Read, Percy and Carnelly, and engineers such as the late Chas. Hood and W. W. Phipson, we owe a debt of deep gratitude for maintaining a high standard in their designs and works which were intrusted to their care.

In some older works it was (and is now still, I regret to say) too often considered the right thing to insert one or two small Tobin tubes in a class room for 50 or 60 children, the result being that when ventilation was most needed these beautiful inlets-such as they were—were closed or stopped up to suit this or that faddist.

It is not an uncommon thing to note a Tobin tube 9 inches by 3 inches considered quite the proper thing for a room of 8000 to 10,000 cubic feet, such a room in our English achools accom-

modating 60 children.

Again, many architects and engineers considered it quite sufficient to have the inlets alone without any extraction whatever, and some going to the other extreme, they thinking it not necessary to have any inlets, but plenty of outlets. These sentiments, I am glad to tell you, are falling rapidly into oblivion, and the better architects and engineers are readily fulling into the idea of Shake-apeare, who made one of his characters say, "Where air comes in, air must go

out," and when this is more appreciated we shall undoubtedly raise the standard of warming and ventilation in Great Britain.

Steam heating was little practiced in England at the period I am now speaking of. At times one would see exhaust steam used for warming workshops and the like, but it was done in such a primitive fashion that it never made any headway. Hot air, too, had its day, several inventors, to my mind, having wasted much valuable time and money in bolstering up a rotten system. Some of the best scientists who have investigated this form of heating have signally pronounced against its continuance.

The only redeeming feature hot air heating has, to my mind, is its cheapness, but this is a small matter when it is borne in mind that we are imperiling perhaps thousands of lives by its adoption. It is dirty, dangerous to property, and the air given off is detrimental to health. The same remarks may be made about the high pressure hot water system, which was much used in England years ago. Both systems are falling into disuse, and I hope to see the day when they will be practically discontinued.

Of course we have in England a Blackman-Smead system of hot air heatlng, and this, to my mind, ought to be classed among the systems that ought to be abolished. I need not dwell upon this, as you are fully alive to the Smead system in the United States.

I think the great revolution in warming and ventilating in the old country took its era about ten years ago, and since then many good men have joined hands in promoting its birth, so to speak. I think that the radiator known in England as the Leeds radiator, but better known in your country as the Bundy, is largely responsible for the evolution of warming and ventilating that I am now speaking of. It was Lewis Leeds, I believe, who introduced the radiator into England, and who executed works on his own account for some time, but was not over successful, for what reason I cannot say; but after his departure from England the late Mr. Phipson took up this radiator and used it for both steam and hot water, with much success.

I think much of the credit is due to the late Mr. Phipson for the way in which he helped to inaugurate and develop a better system of warming and

ventilation in my country.

About the time of the introduction of the Bundy radiator I became associated with Mr. Ashwell of Leicester, and since that date we have made it our duty not only to develop our business but to improve each succeeding contract that was placed in our hands.
We have had no atercotyped lines to

work on beyond the primary principles of warming and ventilation. Each job has been considered and designed ac-cording to its own special requirements, and we have not attempted either to lay down a law that such and such goods as we make ourselves shall be used. We have aimed at having the best articles within our reach, whether of our own make or not, and this I believe has materially contributed to our success in the warming and ventilating business.

The first step in our early days (ten years ago) it was considered sufficient to give 500 cubic feet of air per child per hour, in our board schools, this being done by automatic ventilation.

In the early works coils of gilled pipes or gilled elements covered with cases were fixed in recesses under windows, to which air was admitted; the coils being worked with ateam or hot water, as best suited the case. In the second step we got to coils of gilled pipes with air gratings at the back, so as to diffuse the air over a large surface. This we found very efficient and much cheaper and less dirty, as the castings to coils were found to be receptacles for all kinds of fifth and rubbish. In the third step we got to the "plenum" system, which, to my mind, is superior to all others when properly applied.

The extraction for these systems was invariably an aspirating shalt through which a cast iron flue would pass, taking the products of combustion from the boiler, thus helping to rarefy the vitiated air and causing extraction. In aummer time we would use a "pllot stove" for warming the smoke pipe for the same purpose. I may here say that we proved beyond doubt that a combined system for warming and ventilation was not only permissible but absolutely requisite, and that we were on the eve of something better still.

# Hot Water Heating From Steam Boiler.

From R. Y. W., St. Louis — Having seen the letters of "Rex" and W. H. Page in The Metal Worker, May

duced to run the pipe as shown by the dotted lines, and no difficulty has since been experienced in heating all the radiators connected on the system.

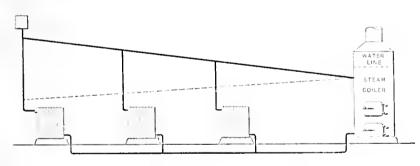
#### HEATING NOTES.

We are independent to the Richmond Stove Company, Norwich, Conn., for a catalogue of the Richmond Sectional heater No. 224. The apparatus is thoroughly described and illustrated and testimonial letters are given, while incidental reference is made at the end of the catalogue to other heaters of the Richmond Company's manufacture. The second catalogue relates to the Richmond Sectional heater No. 320 and 327 with revertible flue. This heater is similarly described and illustrated.

THE NEW ROYAL STRAM HEATER COMPANY, Gardner, Mass., have started up work in their new shop on South Lincoln street.

One of the Later issues of the catalogues relating to the Richmond steam and hot water heating boilers carries the name of George T. Barnes, engineer and contractor, Newburg, N. Y.

THE VAN AUKEN STEAM SPECIALTY COMPANY, Charles P. Monash, manager, Chicago, Ill., issue an attractive catalogue of their manufactures and specialties. The first article noted is the Monash automatic steam air valve; then come the Perfected Duplex No. I air valves, Nos. 2, 3, 4 and 6. Other goods noted are the Midget steam air valve; the Fidelity steam trap; Van Auken's valvea; also low water alarm, pipe hangers, dust deflectors for radiators, &c. These goods are illustrated, full price-lists are given, and sufficient de-



Hot Water Heating from Steom Boiler.

19 and July 7, on heating radiators from steam boiler and as being of possible interest I send you a sketch of what I once discovered in this line. A boiler was used for heating a large building and after having been in operation some time it was necessary to heat some rooms on the same level as the boiler. The engineer in charge of the plant tapped the boiler below the water line and ran the pipe with a slight ascent for about 50 feet, attaching an air tank at the end. Branches from the flow main were taken to the top of hot water radiators on the floor and returns from the radiatora were run below the floor to the boiler, where they ascended and con-nected with it. It was found difficult to keep the system filled with water, as for a part of the distance the pipe ran above the water line, and the tank could not always be kept air tight. The pipe was given the ascent and the tank used because the engineer did not think the radiators could be heated if the flow pipe was run on a decline from the boiler. Owing to the unsatisfactory service rendered, however, he was in-

acriptive particulars to explain the chief features of the goods. The pamphlet is bound in red covers and contains 25 pages.

"EVERTHING in the ateam, gas, water and plumbing supply line" is what the Smith & Winchester Company of Boston, Mass., manufacture and deal in, according to the announcement on a recent advertising novelty. The other side of the card hears the question: "Do you want a snap?" and is a humorous explanation of how one may be obtained by pulling the accompanying elastic, "but it would not he in it with obtaining the exclusive agency for the Winchester boiler."

Dubois & Darragu, 61-63 Gold street, New York, who handle the Volunteer and All Right steam and hot water boilers made by the W. H. Page Boiler Company of Norwich, Conn., have placed the management of this department in the hands of Alexander Don. Mr. Don carried on a steam and hot water heating business at Newark, N. J., for a number of years, and is en-

tirely competent to lay out heating plans as well as superintend their installation.

Holland Radiator & Meg. Company of Chicago, III., have opened an office at 69 Centre street. New York, under the management of T. Holland. On their handsomely carpeted sample floor are displayed Holland radiators in various sizes and finishes. The attention of visitors is called to the method of connection employed in their goods. A male and female projection and recess, similar to an ordinary coupling, is cast on each section, and by means of right and left bolts, readily tightened or loosened with a flat wrench, the parts are securely fastened together. They lay particular stress upon the ease with which a new section may be added if necessary. Mr. Holland is about to make a trip through New York State and will carry with him for exhibition a sample radiator composed of sections of different hights.

F. H. Moore of the Howard Furnace Company, Syracuse, N. Y., visited the New York office of his concern last week. He notes an increasing demand for their Howard combination hot air and hot water heating apparatus.

THE HOWARD THERMOSTAT COMPANY issue from their New York office, at 202 Water street, a circular of the Howard automatic heat regulator, which they call the "Isothermo." This device is intended for use in connection with heating apparatus and is claimed to maintain a uniform temperature, and at the same time to effect some economy in the consumption of fuel.

The Model Heating Company are increasing the capacity of their Philadelphia foundry and adding several expensive machines in order to supply the demand for the Novelty steam generators, which are made in 12 sizes, capacity from 175 to 2000 square feet.

The Thayer Heating Company, 143 lligh street, Boston, Mass., are preparing for the fall campaign by thoroughly renovating their sample room, the walls and ceilings being pleasingly decorated. Their hot water heaters are painted a light drab, the relief portions of the decorations being gilt. All sizes of their boiler are shown, including small direct draft appsratus for use in connection with chicken brooders, kitchen boilers and conservatories, as well as larger sizes of the same heater with direct and indirect draft attachment. The several sizes of the Thayer improved hot water heater are also shown. An impression of great heating power is conveyed by the connection of two large sized boilers by means of the Thayer union. A new water top or auxiliary dome has been brought out, adapted for use with the company's regular line of boilers, which is claimed to increase the heating efficiency with the same consumption of fuel.

C. M. Converse, 96 Lake atreet, Chicago, Western manager of the Elwood Iron Works, is distributing a neat pictorial wall calendar for the last half of 1894. An illustration is given of an office heated by an Elwood radiator, lithographed in colors. The radiator is a conspicuous part of the picture and is shown to be of handsome design and finish. Another calendar is for July only and consists of a blotter attached to an enameled card. The card also bears a view of an office heated by an Elwood radiator. These radiators are made in all sizes, for steam and hot water.

# ROOFING AND CORNICE.

# Roofing and Cornice Instruction.

The following particulars relating to the new class in tinsmithing, roofing and cornice work at the New York Trade School, First avenue and Sixtyseventh and Sixty-eighth streets, New York City, are given in the catalogue for the season of 1894-95, just issued:

A three months' day course of instruction in tinsmithing, roofing and cornice work will be commenced on January 2, 1895, and certificates will be given on April 4. The instruction will be given every day from 8 a.m to 4 p.m., except ou Saturdays, when the school closes at 2.30 p.m. An examination is held during the final week of the course, and to those who pass a certificate will be presented.

TERMS: Thirty-five dollars for the course, paid when name is entered. Good board can be had for \$5 per week. The class will be under the supervision of the Trade School Committee of the New York Employers' Association of Roofing and Manufacturers in Sheet Metal, consisting of Messrs. M. Hallider, John Neil and Frank Shiller.

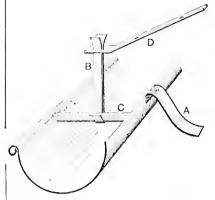
day, John Neil and Frank Shiller.
This course will embrace the tinning or covering various kinds of roofs, lining gutters, making leaders and chimney, ventilating and window caps, making simple and fancy cornices. The manner in which capping and cornice work is secured in position will also be shown, and pattern cutting as applied to roofing and cornice work will also be It is intended by this course taught. to offer young men an opportunity to learn in all its parts the roofing and cornice trade. The pupil will be capable of doing not only simple roofing, but will also have a knowledge of the more advanced and intricate branches of the trade that will enable him eventually to accept a position of responsibility.

A room fitted up with all the tools and appliances of a first-class workshop will furnish every convenience for conducting the work provided for in the

#### Eave Trough Hangers.

From G. E. B., Smyrna, N. Y.—Some time since I saw a method described in The Metal Worker by which a brother tinner used his tin scraps for making eave trough hangers. I use my scraps for the same purpose, but in a different manner from that previously described. Pieces of tin that are from 18 to 20 luches long I cut into strips 1 inch wide and use for stays, as shown by A in Fig. 1. These stays are brought around under trough, nailed to cornice, and placed 6 or 8 feet apsrt. Shorter strips, from 10 to 16 inches in length, are used for the uprights B, and are bent around the cross bars C and soldered to same. The cross bars C are made from pieces of tin 14 inches wide, and from 3 to 6 inches long, according to the size of trough they are intended for. These cross bars are formed in

triangular shape, placed with the opening down, in top of trough, and soldered at the ends. D represents a piece



Eave Trough Hangers.—Fig.1—Various Parts of Hanger.

of  $1\frac{1}{4}$  inch hoop iron cut 10 or more inches long, having a slot in one end and provided with holes for nailing to

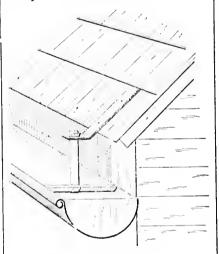


Fig. 2.-Trough Attached to Roof.

roof. D is nailed to the roof, as shown in Fig. 2, the upright B passed through the slot and drawn up so as to give the

In Fig. 3 is shown the die used for punching the slot in the end of hoop iron. The die is represented by F and attached to it is the guide E, which allows the hoop iron D to pass in the proper distance and insures the punch being placed over the opening in die. The punch G is represented in proper position for punching the band iron D. The punch and die can be made by any blacksmith and should not cost over 50 or 75 cents.

#### FLASHINGS.

P. H. Jackson & Co., San Francisco, received the award of honor for their Acme ventilators at the California Midwinter Fair.

Thir Gould Roofing Company of Long Island City, N. Y., were granted articles of incorporation last week. The capital named is \$200,000, and the directors are Charles M. Gould, William J. Gould and George A. Gould of Bridgeport, Conn.; William E. Burroughs, Harry C. Burbank, Geo. M. Flanders and James W. Taft of Brooklyn

G. DROUVE & BRO., Bridgeport, Conn., have been awarded the contract for the metal work in the New Bedford Standard's new building, at New Bedford. They are also supplying the metal work for the new library at Shelton, Conn.

THE AMERICAN ROOFING COMPANY, St. Louis, Mo., have just closed a large contract for corrugated iron roofing and siding, the details of which are not ready for publication. In addition to this contract, they are in receipt of a fair amount of smaller orders, and inquiries received indicate a good trade from now on.

THE YOUNGSTOWN IRON & STEEL ROTFING COMPANY, Youngstown, Ohio, have made application for a charter of incorporation, and will at once commence the erection of suitable buildings at Haselton, Ohio, for the manufacture of roofing. The incorporators are John O. Pew, Chas. E. Pew, L. E. Cochran,

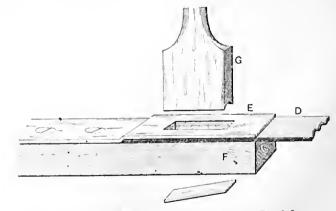


Fig. 3.—Die and Punch for Cutting Slots in Band Iron.

trough the proper slant. The upright B is then cut off 1 inch above D, the ends bent over each way and under, being pinched close with the flat pliers.

M. Evans and G. M. McKelvey. The company will use in the manufacture of their roofing a fastener invented by John O. Pew, who was formerly con-

nected with the Niles Iron & Steel Roofing Company, Niles, Ohio. The new concern will buy sheets from the Andrews Brothers Company, whose plant is also located at Haselton. It is proposed to equip the new plant with the latest modern machinery for the manufacture of roofing.

E. E. SOUTHER IRON COMPANY, St. Louis, Mo., report an excellent demand for corrugated iron for roofing and siding purposes. They have a good stock on hand and are able to make shipments promptly. They are also manufacturing lead washers, which are packed 100 pounds to the box, and for which, they advise us, they are having a large sale.

The Monson, Maine. Slate Company, 113 Devonshire street, Boston, have quarries from which they can supply high grade slate for all purposes, their Monson, Maine, unfading black roofing slate having established a reputation for color and toughness. In addition to the fastness of color, their slates are furnished full  $\frac{3}{16}$  inch thick, with both surfaces level and smooth, and the corners cut full and square. Holea are bored and countersunk if desired, as it is well known that slate is often so damaged in punching that after being on the roof for a time it cracks open and falls out.

JAMES J. WHITE, 185 Dearborn street, Chicago, is to furnish the copper cornice, gutters. &c., for the new school building on Henry street.

KNOOR & BLOCKS, 165 Wells street, Chicago, have lately taken the following contracts: Livery barn of F. D. Foster, Forty-third street and Ellis avenue, cornice, gutters, skylights and light shatts; Frank Gabel's residence, 158 Sedgwick street, copper cornice, skylighta and gutters; Henry Schultze's residence, Osgood street, galvanized iron cornice, skylights, &c.

# HEATING & PLUMBING.

#### NEW WORK AND CONTRACTS.

GAYLORD & EITAPENC, Binghamton, N. Y., have received a contract from the Bangor, Maine, board of education, to equip three large achool buildings in that city with apparatus for ateam heating.

W. H. CLARK, superintendent of the Lebanon Steam Heating Company, Lebanon, Pa., have received the contract for heating the building of the Treasler Orphans' llome, at Lyonsville, Perry County, Pa.

THE HIOH SCHOOL BUILDING, at Shrewsbury, Mass., 18 to be fitted with new heating and ventilating appliances.

AT THE MEETING of the Bullding Committee of the School Board of Brookline, Mass., the contract for heating and ventilating the new High School Building, was awarded to Kendrick Brothers, whose bid was \$16,397.

THE BUILDING COMMITTEE of the Memorial Church parish house, at Springfield, Mass., has awarded the contract for the heating apparatus to the Phillips Mfg. Company. A 12-section No. 4½ Mills boiler is to be used, and the radiating surface is to be something more than 2000 feet.

BARKER BROTHERS of Newport, R. I., have placed the following heaters: A No. 66 Richmond heater in the New-

port County Jail; a No. 515 Richmord hot water heater in Patrick Fagan's house; a No. 515 hot water in the residence of Mrs. Clarence Peckam, Hamilton, R. I., and two No. 55 Richmond heaters in the State House at Newport, R. I.

A NEW SYSTEM of ventilation is to be put in the Court House at Binghamton, N. Y.

O. S. KENDALL & Co., Worcester, Mass., have placed a No. 121 Richmond hot water heater in the residence of Mrs. A. A. Hines; also, in the school house on Thomas street they have placed a No. 421 Richmond steam heater.

E. W. Fisk, Mount Vernon, N. Y., has received the contract for overhauling the heating system and putting in a new heater in the Williamsburgh public school.

THE BOARD OF TRUSTEES of the University of Cincinnati, Ohio, will receive bids for work including the heating and ventilating plant for the main structure of the new university buildings until August 16.

THE REGENTS of the State University, Seattle, Wash, have let the contract for heating and ventilating the administration building of the new university to the Griffith Heating & Plumbing Company for \$4723.

THE TRUSTEES of the graded school, at Montpelier, Vt.. have decided on atesm heat for the building and have awarded the contract to L. C. Bagley, White River Junction, for \$1996.

THE CONTRACT for heating and ventilating the two ward and the Central School buildings at Benton Harbor, Mich., has been awarded to Edward Brammell of that place. The ward schools are to be heated by warm air and the Central School by steam.

THE NEW HAVEN HEATING & PLUMBING COMPANY, New Haven, Conn., have been awarded the contract for heating the new laboratory at the Sheffield Scientific School. Indirect steam will be the system employed.

WE UNDERSTAND that the S. H. Beard Heating & Plumbing Company, New Britain, Conn., have recently been awarded the contracts for heating three residences in that city, using hot water, steam and hot water combination, and ateam.

THE CHICAGO HEATING COMPANY, 40 North Clark street, Chicago, are to install hot water heating plants in the residence of Mrs. Julius Bauer, Fortyfourth street and Ellis avenue, and residence of James Gardner, Austin, Ill.

The following residences are to be provided with the New Idea smoke consuming furnaces by the Davis Johnson Company, 45 East Jackson street, Chicago: A. L. Perrote, Wheaton, Ill.; Robert Dickey, La Grange, Ill.; H. M. Small, Maywood, Ill.; S. S. Miles, Oak Park, Ill.; W. B. Gilbert, Austin, Ill.; Dr. F. J. Burr, Rogera Park, Ill.; M. E. Church, West Pullman, Ill.

THE MODEL HEATING COMPANY have contracts for placing five Novelty steam generators in fire and patrol houses in Philadelphia.

T. W. Cullen has been awarded the contract for plumbing the High School and Primary School House, Waltham, Mass., for \$733.

AT A SPECIAL SCHOOL MEETING, held at Manchester, N. II., July 16, it was decided to appropriate \$2800 to heat the school building in the village.

WOOD, BRIGHTMAN & Co., New Bedford, Mass., have been awarded the contract for the plumbing in the new St. Luke's Hospital, in that city.

FISHER BROS., Harrisburg, Pa., have been awarded the contract for heating the two new school buildings at Tower City for \$725.

The contract for plumbing J. S. Sanderson's new block, at the corner of Dwight and Sanford streets, Springfield, Mass., has been awarded to Edward S. Hanks, the Harrison avenue plumber.

W. ALLEN, Fargo, N. D., has closed the contract for plumbing the Gladstone Hotel, at Jamestown.

GEO. E. SLHEPBR & Co., Lynn, Mass., have been awarded the contract for the plumbing of the Phillips High School, at Swampscott, and have begun work on it. The gas piping in the building will be done by L. A. May, and the heating by Ingalls & Kendricken of Boston, who will put in two 48 inch tubular boilers. The contract for the slating and copper work was awarded to Burns & Bee.

#### An Iron Project in Utah.

Articles of incorporation have been filed with the county clerk for the Ogden Iron Mining & Manufacturing Company of Ogden, Utah.

The company own nine iron claims,

all in Weber mining district.

The incorporators are Albern Allen, Joseph Tyrrell, John Junker, C. S. Pulver, S. L. Ives, S. H. Head, Geo. F. Seager, C. A. Bedford, O. A. Kennedy, Maronl Poulter. L. E. Seager, James Wotherspoon, L. E. Bedford, J. C. Nye, E. G. Williams, E. F. Bratz, H. S. Seager, A. J. Weber and Geo. H. Burgitt, all of Ogden, Utah.

The officers of the company until the pextregular meeting of stockholders in

The officers of the company until the next regular meeting of stockholders in December are: Maroni Poulter, president; A. F. Bratz, vice-president; O. A. Kennedy, scorctary, and C. S. Pulver, treasurer, and with John Junker, Joseph Tyrrell and C. A. Bedford constitute the

board of directors.

The organization of this company is the result of an effort to consolidate all the desirable iron properties in the vicinity of Ogden under one management, for the purpose of development in the hope that such action may lead to staring up the old iron works which were once successfully operated in that city. By a united effort the owners, over 20 in number, of these properties hope to do what singly they could not expect to accomplish.

Two Northern Ohio inventors have, it is announced, just completed the plans of a new submarine vessel, designed primarily for work on sunken ships. They claim that the hoat can be submerged at a moment's notice, and that it can store sufficient air to conable its occupants to work under water without serious inconvenience for 12 to 24 hours.

The summary of immigration statistics for 11 nonths of the fiscal year, published by the Treasury Department, indicate that the decrease of immigration for the year will be about 50 per cent., as compared with that of last year; or about 300,000, as against 450,000 in 1893.

# THE RETAIL STORE.

#### The Berry Clothes Sprinkler.

This sprinkler is shown herewith and is put on the market by the Berry Sprinkler Company, Boston, Mass. The sprinkler fills automatically, absorbing the contents when placed in a bowl or basin of water. The manner in which it is used is obvious, a slight quick motion of the device precipitating some of its contents. The device is intended for use in connection with the ironing of clothes, permitting one to iron them immediately after sprinkling, if desired. For starched clothes its use is referred to as especially satisfactory. It may also be used as a sprinkler for

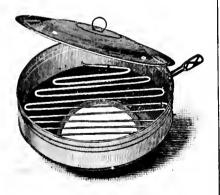


The Berry Clothes Sprinkler.

house plants and for laying the dust while aweeping. It can also be utilized in the sick room where liquid disinfectant is employed, and it is stated that it is now being used for that purpose in some hospitals.

#### The Lebanon Broiler.

Seltzer Specialty Company, Lebanon, Pa., are manufacturing this article, of which an illustration is given herewith. The broilers are described as made of best bright tin, with sheet steel bottoms. The bottoms are tapered so that drippings will not grease the stove. The broilers are large enough to take in rossting ears, chicken, fish, &c., and



The Lebanon Broiler.

may be successfully used for roasting potatoes, apples, & 2, over the fire. The broiler is also referred to as making an excellent steam cooker, for which purpose it is placed over a kettle of boiling water. In this way puddings, dumplings, vegetables, & 2, may be cooked in it. The broilers are 11 inches in diameter and 3½ inches deep.

# Starting and Conducting Business.

BY M. STRANSKY.

In many cities of the United States certain particular methods have been adopted in building up vast mercantile establishments. The greatest successes, commercially, have been in the retail dry goods line—the department stores; but the means used can be applied to a general house furnishing store, under which designation a Hardware, Stove and Tinware dealer may properly be classed. A. T. Stewart was, perhaps, the first merchant in this country who attained great prominence by using many of the systems in vogue in every well organized department store of the present day. It is true that some of his well tried principles were originated by himself: but it is equally true that many business ideas, which he is sometimes credited with having created, had been practiced long before in the mammoth Old World establishments, such as the Bon Marché and Louvre of Paris, Whiteley's in London, &c.

In New York City and other Eastern cities competing merchants observed Stewart's amazing growth and gradually adopted some of his ideas, each successful competitor adding such other schemes for attracting custom as suggested themselves in the conduct of his own particular business. With the development of Southern and Western business centers (especially the latter) the methods so successfully practiced in the East were transplanted. It may be urged that the processes which have proven valuable in the branch of tradereferred to may not be feasible in the house furnishing line. There is no doubt, however, that they are, and I shall endeavor to mark out a plan of campaign for a Hardware dealer, with the utmost confidence that if substantially adopted it will most certainly lead to prosperity. Many of the ideas here announced are those successfully used heretofore, while others are new.

#### NEVER MIND THE RENT.

The most important requisite to success in the retail business is location. Numberless merchants, attracted by an imposing building, at perhaps a low rent, in an out-of-the way street, have made the fatal mistake of preferring such a building to a more modest looking one in a prominent thoroughfare. To get the full benefit of the modern methods you must be located in the best street in the city. Never mind the rent! Location is everything. And now, having opened our store on a lively thoroughfare, let us proceed to business. Let us imagine an ambitious merchant with a stock of, say, \$5000 in a fair sized town anywhere within ten days from New York or Chicago—that is to say, a point where it takes ten days or so for freight to reach him.

#### SHOW WINDOW DRESSING.

Next in importance to location is the show window. Show window dressing is the most important advertising. The goods in a show window should be changed at least twice a week and

often three times. There should be a window full of some good special sale article once or twice a week. Never let up on this in season or out of season. The best judgment must be used in selecting these special sale goods. Do not advertise through your show window an article the chief merit of which is cheapness. Be content often to make a very small profit on such articles; sometimes sell them at cost and occasionally sell them at less than cost.

#### BROOM SALE.

For example, suppose you decide to have a special sale on brooms. Ordinarily you might sell, say, a dozen brooms in a week. But for this special sale do not hesitate to order 25 dozen brooms. Now you can buy in lots like that brooms ranging from \$1.25 a dozen to \$2.50 dozen. If you buy them for \$1.25 and sell them for, say, 12 cents each, you will be giving your enstomers a bargain, but not a good broom. The broom will not give satisfaction and your customers, forgetting that they paid only 12 cents, will say "Oh, he keeps nothing but trash!" It will be a waste of time and energy. On the other hand, suppose you pay \$1.75 for the brooms. It is presumed that your special sale on brooms is at a time when the broom corn crop is good and brooms are cheap, so that you can buy a fairly nice three sewed broom for \$1.75 a dozen. Suppose you sell them at 15 cents each. You will lose about 2 cents on each broom, but a large proportion of your customers will buy then and there other goods on which you will make the regular profit: many of them will talk to their relatives, friends and neighbors about your store, will show the broom they bought and will be sure to go to your store when next they require anything in your line.

You should advertise this broom

You should advertise this broom sale like this: On a Monday put in your show window the whole 25 dozen brooms and nothing else. Hang them around the back, sides and front, and pile a lot of them in the middle of the window with a large ticket reading

SPECIAL SALE.
Beginning Thursday,
25 dozen 3 String
Extra Quality
BROOMS,

EACH.

When Thursday comes take the whole 25 dozen out of the window and place them in a rear part of the store, so that your customers will have a chance to see and buy other goods. If you hand the brooms out from the show window or place them too near the door, many will buy the brooms and nothing else and pass out. But even in such cases you will, in the near future, get the benefit of the advertising by an increase of patronage. You will find that if you give extra value, shrewd housekeepers will wish to buy three, four or six brooms at a time. Even competitors will try indirectly to buy up your brooms. Your plan should be to first stamp, with a rubber stamp, your name and address on the handle of each broom and then limit the buyers to one or two brooms—telling them plainly that this is a special lot and you wish to give all your customers the benefit of the purchase; besides you must limit the

number to each in order to prevent your competitors from buying them to the exclusion of your customers.

#### SOME SEASONABLE ARTICLE.

On Thursday, when you have emptied your show window, you must be prepared with another lot of goods, say Chamber Pails, or Japanned Bread Boxes, or some seasonable article, Fly Screens, or lee Cream Freezers, or Oil or Gas Stoves, or Coal Hods or Enameled Preserving Kettles. There are a thousand and one things suitable to this purpose. But avoid "running on" a petty article, such as a 4-cent Shovel or a 3-cent Tack Hammer, unless you have a dozen or so of such articles at the same time, as special sale leaders. But do not, under any circumstances, sell a poor article at a special sale, not even at 1 cent. If you wish, by way of variety, to sometimes run on things at from, say, 3 to 9 cents, there are plenty of good quality articles even at such trifling prices—Tacks, Coal Shovels, Pokers, Stamped Pans, Pie Plates, Door Bolts and numberless things to select from in Hardware, wooden ware, tinware and miscellaneous knick-knacks. It is a good plan, whenever advertising either through show windows or newspapers or circulars, to put a tag on one of each of the advertised articles reading:

#### SAMPLE NOT TO BE SOLD.

This is done so that in the event of your having a great rush for the advertised articles you can have one left to show belated purchasers. Tell them to show belated purchasers. Tell them you have had an extraordinary rush for the goods, show them the sample, take their names and addresses and promise to order more, and to deliver to every one who calls in answer to your advertisement. In other words, you must make good every announcement at whatever cost; for nothing harms a merchant so much as to break faith with the public. It is not necessary, in order to attract custom by window advertising, to have a window full of one article. At times a general assortment of goods may be displayed, and one or a few articles may be marked at a reduced price. If a merchant has more than one show window he has a great advantage, inasmuch as he can display the regular lines of goods at all times, while reserving one window for special sales in steady and rapid succession. The greater part of show window dressing can be done on variously shaped forms, can be done on variously snaped forms, which may be trimmed in the store and placed in the window ready dressed. There is limitless scope for this, and there should be constant study for striking effects.

#### A PLEASED CUSTOMER.

There is no objection to having, say once a week, a special sale for one day only on a lot of some desirable articles, with a suitable price ticket hanging over it. This sale need not be advertised in any other way except by the ticket announcement inside of your store. Customers who happen to be in the store will come unexpectedly upon the bargain, will buy, and will consider themselves fortunate in having visited your store that day. They will leave pleased; and a pleased customer talks in your favor. Moreover, they will call again and again on other days in the hope of securing more of your

#### TO-DAY ONLY

specialties. Thus the public will gradually fall into the habit of visiting your store without having been attracted by newspaper announcement or show window display. Moreover, your competitors will not be posted as to what you are offering. But be sure you have your offerings for one day

only, if you have so announced. You can next day put the goods back in stock at the regular selling price. Occasionally, it is advisable to have a lively sale even for one hour only. All this creates stir, activity and favorable comment, and helps to build up a business. Make it a rule, and announce by placards, that customers are welcome to look around whether they purchase or not. Instruct your salesmen not to importune visitors to buy, so that they will be perfectly at ease in looking around. But your salesmen must be alert and must watch the expressions on the faces of visitors so as to be ready to answer any inquiries, otherwise there will be some complaint of inattention.

#### METHODS OF ADVERTISING.

As we have been considering the value of show windows from the standpoint of advertising, it may be well to next consider the general subject of advertising before taking up the matter of considering affairs inside of the store. It is undeniable that more money is wasted in advertising by the inexperienced than on any other thing in business. We hear and read so often of the value of printed matter or newspaper advertising, or of the vast establishments founded by advertising, that many merchants are tempted to try that supposed way to success. As a general thing most of the money thus spent is wasted—at least there is not sufficient return for the outlay. A merchant with a stock of, say, \$5000 ought to do a business of \$15,000 to \$30,000 a year—depending on how near he is to the market. Let us say he sells in 1893 \$22,000. He should decide to spend 3 per cent, for advertising in 1894, which would be \$660. This amount would be most advantageously spent if divided about as follows:

 On show window leaders
 \$500.00

 On newspapers
 100.00

 On circulars
 60.00

The best method of show window advertising has been described. As to newspapers, it requires special talent to advertise profitably. Never advertise like this:

tise like this:

The best place in town to buy Hardware, House Furnishing Goods, &c., is at John Smith's, 100 Main street. We have the best assortment at prices that

defy competition.

Instead of this ancient and comfortable, but worn out way, adopt a more striking method. Mention some special articles, describe them concisely, use cuts whenever possible, and above all quote prices. For example:

#### SPECIAL SALE.

Galvanized Conl Itods, a nice size, corrugated bottom, worth 50 cents,

25 dozen Willow Clothes Baskets, extra strong, medium size, first quality in every respect,

Your newspaper announcement must never appear the same way twice in succession. At times you can vary the style, thus:

#### OH, MY!

A Lawo Mower like that for \$3. Tois is heard daily in our Store from our delighted customers. Come and look at the Mowers.

Then follow with three or four other items, avoiding long winded announcements. Advertise only excellent values, and remember that this is a busy world. People have no time to read elaborately worded advertisements, and cannot remember what they read if you say too much. "Brevity is the soul of wit and the life of advertising."

In determining the outlay for news-

paper advertising the amount is based on a stock and sales as stated. As the business grows the proportion may be increased in favor of newspaper advertising. When the business becomes large, with the stock of merchandise correspondingly large, more than half of the total amount set aside for advertising may profitably be devoted to newspaper aunouncements. But window advertising must never be neglected and must be persisted it no matter what dimensions the business attains.

#### WITHOUT ANY RESULT.

Circular advertising has the disadvantage that it takes too long to get the matter from the printer and have it properly distributed. To give the circulars away on the street is not only a source of annoyance to passers by but is a positive waste, since nine out of ten are thrown away without being read, and the tenth one is read out of enriosity and then thrown away without any result. It may be well to do some circular advertising, but they must be distributed from house to house by the most reliable boy you have in your employ. Nine out of ten boys whom you hire temporarily to give out circulars will start out bravely with an armful, work faithfully for an hour and then throw the remainder over a fence, down a sewer or make a bonfire with them. The announcements on your circulars must also not be of the defy competition order, but must have a striking heading like this:

#### SNOW IN JULY

would be a surprise, but not more than those real copper bottom Wash Boilers for No 7 Stoves at 79 cents.

The idea of fixing odd selling prices, 9 cents, 24 cents, 49 cents, 74 cents, 98 cents, \$1.98, &c., is agood one. It sounds cheaper and seems cheaper. Just observe how a lady in looking through a line of goods will ask the price of, say, a Bird Cage. You state the price, say, \$1.98. She looks at other cages, and, presently, coming back to the first one, she will say: "How much is this—\$1 and—?" The \$1 seems to have been impressed on her mind, and she thinks the article is much less than \$2.

And now as to the general conduct of the business. Have one price only. Place placards in conspicuous places, reading:

One price—a fair one. One price—No deviation.

It is necessary to gain the confidence of buyers by having absolutely one price, and by having all your selling prices marked in plain figures. This is a saving of time and increases sales. Oftentimes customers will buy goods when they are boldly marked ont. The price attracts: many do not care to ask questions but will buy when they see the articles offered that way. A large price ticket is a silent salesman.

#### LIABLE TO BE STOLEN.

A matter of extreme importance is the general arrangement of fixtures. Have as few goods on shelves as possible. Put your goods out on connters. All the small articles. Hammers, Locks, Tacks, Spoons, Cutlery and a thousand other things, should be displayed in snug fitting bins, each bin with a price ticket on it. You will be surprised how those little bins will attract customers. Have plenty of goods on counters and center tables, with tickets everywhere. Change around often. Have a line of goods one week in a given place and then change to a different part of the store. Have your shelves for such goods as are seldom called for, or for the finest and highest priced goods. For instance, if you have single plated Tea and Table

Spoons in your bins, keep the high priced triple plated Spoons on shelvesor in a showcase. Get along, by the way, mashoweases, treating, by the way, with few showeases; one showeases in fact, is sufficient. Showeases are out of date, It may be necessary to have one, but that is surely sufficient. Do not fear that goods exposed on counters are liable to be stolen. Though this may happen occasionally, it is made up 20 times over by increased sales. Make it a rule to cheerfully refund the money if any article bought proves un-satisfactory. Do not insist on exchanging or selling something else in place of the goods brought back, but refund the money promptly. In nearly every instance the customer will buy something else amounting to as much or more. Have placards also prominently posted up reading:

If anything does not suit, bring it

back and get your money.

Money refunded if any purchase proves unsatisfactory.

We don't want your money unless you are satisfied.

Merchants who never make mistakes never make anything. Mistakes of overbuying or of buying slow selling goods—" stickers" they are called—will frequently be made. In such cases the first loss is the best loss. If goods will not move at one price, reduce the price. If after a few days they still stick, reduce again. Keep reducing until you get rid of them. Sometimes until you get rid of them. Sometimes even a deep cut in price will not avail. In that event put a premium on the goods—a "P. M." it is called. That is to say, give your salesmen 5 to 10 per cent.—according to the necessity of the case—on all the stickers they sell. At times, if reduced price will not succeed put the price back again and give "P. M." instead. All goods on which a "P. M." is given should have a separate tag with the amount of the "P. M." noted thereon. When such goods are sold the article with the tag should be brought to you, so that you can put to say, give your salesmen 5 to 10 per be brought to you, so that you can put your initials on the tag. The latter is ne prought to you, so that you can put your mitials on the tag. The latter is then retained by the salesman and cashed, say, once a week. Unless some system of this kind is adopted, you will find that the "P. M." tags will sometimes be surreptitiously transferred to quick selling goods, and you will thus have paying a premium, for selling your. he paying a premium for selling regu-

#### SEE HOW QUICKLY.

If it is necessary to deliver goods to customers, make it a strong point to deliver promptly. If you deliver by boys offer, besides nominal wages, say or 2 cents for each delivery. You will be surprised to see how quickly the boys will return and how eager they will be for more deliveries. Don't find too much fault with your help. Do not confine all your pleasant words to your customers. If a salesman does well, or keeps stock in good order, or dresses a good window, show your appreciation by encouraging words.

#### BE FAIR.

Let it be an unvarying rule to treat traveling salesmen cordially. They are well posted as to prices and can give you valuable suggestions at times. In your dealings with the inerchants from whom you buy be fair in every way. Pay promptly and make as few claims as possible. Even if you have a fair claim, if the matter is trilling. let it pass without making any claim. Success in business is due to the good will not only of buyers but also of sellers. Avoid discussing politics and attend strictly to business. If possible go once a year or so to the market. Visit other retail establishments. You will thus obtain suggestions which may be utilized. Divide the keeping of the stock among all your clerks—that is to say, give each clerk a certain part of the stock to look after, to keep it

clean, to notify you of goods wanted in order to keep up the assortment, or to advise you of such goods as are moving slowly.

#### CONSPICUOUS SUCCESSES.

It may be urged that the general otherwise to a depend on the general plan of conducting business as here outlined may be very well for a dry goods store, but is not adapted to a Hardware store and House Furnishing establishment. But this is a mistake, The same methods which prevail in the branch where the most conspicuous successes have been made will build np a Hardware or House Furnishing business, Indeed, they have done so everywhere.

#### IT IS EASY TO ADD.

It should be the ambition of the retail Hardwareman to build up a business in which may be bought almost every thing. When the Hardware, Stove and House Furnishing departments are in good running order, it is an easy mat-ter to add, say crockery, china, glass ware and bric-a-brac. Then as additional space is obtained, pictures and ditional space is obtained, pictures and frames, wall paper, upholstery, furniture and carpets may gradually be added—in fact everything pertaining to the interior of a home may legitimately be sold under one roof. It should not be forgotten, however, that we like a paided under the care no line must be added unless the assortment is quite complete. Hence, if there is insufficient capital for the purpose it is preferable to wait until you are financially able to properly open each new department.

#### A CERTAIN INVESTMENT.

In this way the Hardware, Stove and House Furnishing store may develop into a department store of kindred lines-each branch conducted on its own merits, and the accounts kept as though each were a separate business, so that the profits or losses of each department may be accurately ascertained twice each year. A competent head must, of course, be engaged for each important line. The usual way is to make a certain investment for stock in a given department. After that subsequent weekly purchases are regulated by the weekly sales, and thus perfect control is maintained over the buying. A good office man or finau-cier can hold the buyer or manager of each department in perfect check, and can tell quite accurately just how each separate department stands at the end

of each week.

It may confidently be asserted that
the growth of many large and successful establishments all over the United States is due to the conduct of business on the general lines briefly mentioned. At any rate, it is an easy matter for ambitious readers to ex-periment with some of the ideas advanced.

#### Buhl Side Lift Lanterns.

Buhl Stamping Company, Detroit, Mich., are putting on the market the lanterns represented in the accompany. ing illustrations, which are a recent addition to their line. By the use of the thumb and forefinger in the manner indicated in Fig. 1, the disk, guard and globe may be lifted entirely free from the burner and as readily returned to It is pointed out that the patent place. side lift securely locks the globe in position when raised or lowered, and that the burner is always locked when the lantern is in use. Fig. 2 represents the company's side lift contractor's lantern, which is offered with ruby globe, and which on account of its atrong construction, simplicity and few separable parts is specially recommended for street

and railroad purposes, or wherever a signal lantern is required. These lanterns are equipped with the company's braced souare tubes, made from a single piece

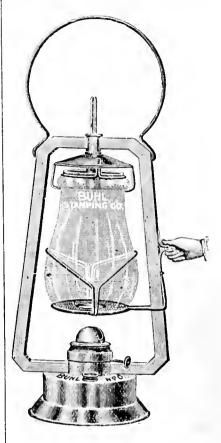


Fig. 1.-Buhl Side Lift Lantern No. 15.

of tin, non detachable basket guard and tested oil well. The latter, it is stated, can be filled, lighted and regulated without removing the globe. It is

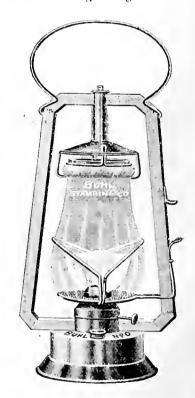


Fig. 2.—No. 159 Contractors' Lantern.

claimed that these lanterns will burn 20 hours without refilling, and that they can be easily manipulated by a child or a one armed man.

# STOVE TRADE NOTES.

## Concerning Prices of Stoves.

RY W. J. M.

! Considering the stagnation of the stove business for the past eight or nine months, prices have been fairly well maintained. The tendency is strong to force sales at any price when repeated efforts to get orders from good customers have been fruitless. The temporary loss of a dealer's trade is not so much the cause of reduction in prices as the fcar on the part of salesmen that some favorable change might take place with their customer's business during their absence, and some fortunate fellow drummer be on the ground to get his order and secure a steady customer. Some cutting has been done and in some cases dealers have made prices for the wholesalers, but very little mischief in this direction has been done, and when the tide of business turns manu. facturers will reap the benefit, well deserved, of the wisdom displayed in holding prices. It indicates very forcibly that prices of stoves has been ruling low enough before the advent of hard times, and any general reduction of prices would have thrown many concerns into bankruptcy. There has been more shaving or cutting of price of contract work for new buildings than in any other direction, but in the general line steadiness of prices has prevailed.

The fall season, however, is now about at hand. At this time last year one and all (as if by common accord) were disposed to apply the brake to their business and sell their customers what they appeared reasonably to require, but to force no goods upon them and honor countermands as they were made without complaint or protest. This policy was followed on the principle that, while the business of the country was in the throes of a panic, forced sales were apt to swell losses, and credits as liberally bestowed as before would be regretted at the end of

the year.

There is danger now, however, that this wisdom will forsake some manufacturers who have the impression that the weaklings have gone under and most all the aurvivors are safe risks. Over zealous competition or cutting of prices to gain customers based on that impression will result disastrously to those who undertake it, and all will

auffer indirectly.

The grounds upon which sellers find apparent justification for cutting prices are legion, and among the more recent excuses is the plea that the sacrifice of profit to secure a new customer, if he be a prominent dealer and large buyer, can be reasonably charged to advertising account. The idea that it costs a certain amount to secure a new customer by advertising, and if the salesman cannot effect a sale to a new man by force of argument or the merits of his goods he can afford to cut them to accomplish it, charging the difference to advertising, is a false and expensive one. Goods that have merit and are persistently and judiciously advertised command a ready sale at a fair price, while cutting is bound to react upon the manufacturer

and compel reductions to other customers who have paid regular prices. Besides this, there are some dealers who buy only at such sacrifice prices, and as a rule are not steadfast or profitable customers to have. Sales like the following are sometimes under

ing are sometimes made:

"A" is a large dealer and will give the salesman an order for 50 of his ranges and run them right along, providing he can buy them at \$10 each. The regular price is \$12 50. The net foundry cost of them is \$9. It wants a new name plate for it and his own name card put on. He atipulates that they must be delivered to his town and he be guaranteed against breakage. These provisions are against the policy of the house, but this is an exceptioual case and agreed to to get Mr. A's trade. The terms are four months net, but Mr. A always having plenty of ready money, pays the account in 30 days and takes 5 per cent. off, although the possibility of his doing so was not referred to when the deal was made, and the house, after some little hesitation, concludes to allow it this time. The account, when such a deal is closed, would stand something like this:

Received for 50 ranges at \$10 each	\$500.00
Less 5 per cent. discount	25.00
Total	\$475.00
Cost of ranges	\$450.00
Pattern work for name and card	7.50
50 cards at 10 cents each	5.00
Cartage	10.00
Freight prepaid	20.00
Freight prepaid	5.00
Salesman's expenses	7.50

Total cost......\$595.00

This does not include handling, elevator power, clerk hire or any of the items which go to make the general expense which all sales should help to pay, amounting at least to 10 per cent. on the cost, or \$45 more, that and the \$30 going to advertising account. Surely this is expensive advertising unless the same dealer bought a good many other atoves from the same house, and paid fair prices for them, which so shrewd a man would not be apt to do, and if he did not it would be hard to find what advertising the \$75 paid for when the ranges bought were differently named and the identification of the manufacturer obscured.

#### The Comstock-Castle Stove Company

of Quincy, Ill., send us a copy of their forty-sixth annual catalogue and pricelist of stoves, ranges and hollow ware which they manufacture. In presenting this volume to the trade the company call attention to the number of additions which have been made to their already extensive assortment of cook stoves and heaters, including a line of hand-some steel ranges. The opening pages are given up to information of general interest to the trade, together with an alphabetical index. The ranges occupy about 30 pages of the catalogue, the constructions being known under such names as the Economy, New Best, Prize, Noxol, Magic Argand and Em-

pire. The following 30 pages are taken up with cook stoves known as the Prize Economy, Golden Economy, Champion, Ardmore, Stately, Sunrise, Mascot and Alpine. The second half of the work is devoted to heaters, the leading place being given to the Economy Todd, a wood base burner made in numerous combinations. Since introducing this class of stoves to the trade, the manufacturers state that they have tried to keep abreast of the times and improvements and have patented the more important features introduced. Special attention is invited to the Economy all cast Todd stove, in which two cover holes and a center are introduced in the top. This enables it to be used for both heating and cooking purposes. The Antique Oak, introduced late in the season of 1889-90 and which has met with a gratifying success; the Grand, a sheet iron cylinder surface burner; the Benjamin Franklin, for hard or soft coal; the Economy, a soft coal base heater, and a miscellaneous line of cottage parlor, globe, cannon and box stoves complete the assortment. Several pages are given up to a list of stoves for which repairs can be furnished. The stoves out of date for which repairs only are made are indicated in the list, as well as those stoves of which the patterns for some of the parts have been destroyed by fire.

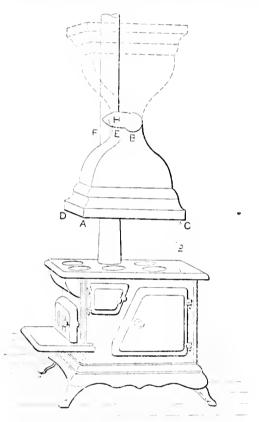
# The Gem City Stove Company.

Among the neatly printed and carefully arranged stove catalogues which have reached our deak this season, that issued by the Gem City Stove Company of Dayton, Ohio, takes a leading position. It is a volume of a little over 90 pages, bound in covers carrying an em. bossed side title in deep blue, the back cover being embellished with a bird's eye view of the company's works at Dayton. The printing is in two colors, and the text is presented in clear cut type upon a good quality of paper.
The leading place is given to the Clermont line of ranges and cook stoves, which are manufactured in 114 different styles and sizes. The constructive features are such as have established for the goods a wide popularity and the ornamentation is of an attractive character. The cook atoves and ranges occupy over 60 pages of the catalogue, the remaining portion being given up to heaters, of which the Dayton Oak for wood or coal is the first considered.
This heater has square ash box, large double fire doors, extra heavy ribbed fire pot, swing top with griddle hole beneath, deep ash pit with large bailed ash pan and nickel trimmings. The asn pan and nicket triminings. The Cottage Gem, for hard or soft coal or coke, made in two sizes; the Adora, a fancy soft coal parlor stove made in three sizes; the Rulo, a heavy cannon stove made in four sizes; the Comfort, a new square parlor heater for soft coal or coke, made in three sizes; the Wood-bine, a richly treated cottage parlor stove for wood; the Oakland, a new box atove, and the Pearl, an open front heater for coal or wood, are also illustrated and described.

#### Revolving Range Canopy.

A. L. Burtis, Lockport, N. Y., has designed a revolving range canopy that possesses a number of original features. A B C D E represents the canopy in position over the range. The smoke pipe F is provided with a tee, II, over which the canopy slips. There is an oblong opening in the underside of the tee, through which the vapors from the lange are conveyed to the smoke pipe and thence up the chimney. As the canopy slips on the tee II, it can be removed at any time, or its position reversed, as indicated by the dotted lines. When the canopy is in a reversed position the opening in underside of tee is closed, thus preventing any air from entering the smoke plpe at that point.

upper part of the drum by three independent steel flues, which are all inclosed in the easing. Several pages at the beginning of the catalogue are devoted to remarks upon warm air furnaces, fresh air supply and the aubject of ventilation. The Famous Florida, Famous Eclipse and Famous Comet furnaces are illustrated and described, together with the Famous Magnet, already mentioned. Following these goods are "a few pointers on setting a furnace," and a statement "why furnaces supersede heating stoves." A blank form of specification for warm air heating apparatus is given, together with the company's inquiry sheet. Instructions for setting up furnaces in portable form and in brick work are given, together with telegraphic code, tables



Revolving Range Canopy.

The distance from C to the top of range should be about 16 inches, or sufficient to allow the canopy to revolve without coming in contact with the range.

# The McClary Mfg. Company, Limited,

of Lendor, Ontario, and with branches in Toronto, Montreal, Winnipeg and Vancouver, B. C., have issued from the press an 80 page illustrated and descriptive catalogue of McClary's warm air furnaces and combination warm air and hot water heaters, adapted to warm churches, residences, hotels, public buildings, &c. For the season of 1894 the company have added several new features to their already extensive assortment. The Famous Magnet wood furnace, which was placed upon the market last year, has been improved by adding to its radiating capacity, and the company have also added a larger size known as No. 17. They have also improved their low radiator steel coal furnace now known as the Famous Florida. Its heating capacity has been increased materially by lowering and enlarging the radiator and connecting it to the

showing capacity of pipes and registers, testimonials, &c.

#### Gold Coin Stoves,

We have before us a 152-page catalogue of Gold Coin stoves manufactured in the West by the Chicago Stove Works of Chicago, Ill. It will be re-membered that in last week's issue of the paper we reviewed the catalogue of the Bussey & McLeod Stove Company of Troy, N. Y., who are Eastern makers of these goods The volume before us is very similar in its make-up and arrangement to that of the latter company, and an extended review of it would practically consist of a repetition of what was presented last week. The goods shown include a number of new patterns, together with others which have been improved in various particulars for the season of 1894. Among the latest additions to the company's assortment may be mentioned the Gold Coin range for hard or soft coal, a feature of the exterior treatment being carved ornamentation, which produces a pleasing effect. The edges are oil buffed and the oven door panel, oven door shelf,

towel rail and tea pot stand are nickel plated. The stove has sectional fireback, curved front grate, flat or duplex bottom grates, heavy ring covers and centerpieces, strapped and ventilated. The company have also added a fourhole range to their line of Gold Coin stoves and have improved their Gold Coin square base heater for wood, made in two sizes; the Gold Coin Ventiduct wood parlor, the Gold Coin Ventiduct oak, and the Gold Coin Ventiduct base burner for hard coal. The printing is neatly done and the binding is in red covers with embossed side title in old gold.

#### Channon-Emery Stove Company

of Quincy, Ill., send us a copy of their annual catalogue and price-list of stoves, ranges and hollow ware. It is of a size and shape convenient for reference, neatly printed and arranged and bound in attractive covers with back title consisting of the name and address of the company and the dates 1894-95. The line of goods shown are made under the name Never Fail, the ranges occupying something like 40 pages of the catalogue. The leading features are interchangeable reservoir system, ample sheet flues, curved front grate, large feed door, heavy covers, capacious ash pan, large and high oven, fire box warranted for five years, cut top and attractive ornamentation. These goods are made for coal or wood and also for wood exclusively. The cook stoves occupy over 30 pages and embody features of construction and ornamentation which have given them an extensive sale. heaters are represented with the Cheerful Todd for 1894 in the leading place. This is a new stove for wood only, and is offered in a variety of styles and sizes, several of which are shown. Cheerful Oak, Cheerful Surface Burner, Expert, Primrese, Warrior, Senator, Firefly, Oak Leaf, Useful, Sunlight, Fairy, Leader, Western and Motto are some of the names under which the other heaters are offered. The catalogue closes with a list of hollow ware and an alphabetically arranged index.

### J. S. & M. Peckham Company

of Utica, N. Y., are distributing to the trade their illustrated catalogue and price-list of stoves, ranges and stove dealers' supplies which they manufacture. The goods noted at the beginning are the Imperial Grand ranges for hard or soft cosl or wood, made in various styles and sizes. This is followed by the Grand Army, the Grand Electric, Belfast Grand and Liberty Grand. A page with two illustrations shows the high closet and the fancy mantel which can be attached to any size or style of range made by the Peckham Company. The Saxon Grand is a coal and wood cook with bracket reservoir. Next comes the World Grand and the Artisan Grand, a wood cook; the Justice Grand and the Grand Duke, both of which are adapted for wood. The heating stoves comprise the Niagara Grand, Windsor Grand, Grand Globe, Citizen Grand and a variety of smaller heaters. The Cottage Grand, which has been improved for 1894, is a direct draft heating stove for wood, made in two sizes. The Cherry, Palace, Rosedale and New York are other members of this general class. The remainder of the catalogue is devoted to stove dealers' supplies, all the goods being illustrated and accompanied by lists of prices and sizes.

#### ODD PLATES.

The Peninsular Stove Company, Detroit, Micb., are distributing an interesting publication showing cuts and presenting a description of their complete line of Peninsular furnaces adapted for using all kinds of fuel. This work contains a great deal of valuable information about furnaces and furnace work in general, and Peninsular furnaces in particular. A copy of the ironclad Peninsular guarantee is given on one of the pages, while numerous others are devoted to the names of some of the thousands of persons using Peninsular furnaces in various sections of the country.

The Plant of the Mount Penn Stove Works, Reading, Pa., was put into operation on Thursday after a lengthy idleness, with over 100 men.

The Preserry Stove Lining Company of Taunton, Mass., have issued a supplement to their catalogue of stove, range and furnace linings. It consists of 16 pages and presents the names of the stoves arranged in alphabetical order. In many cases the name of the manufacturer of the stove is given, together with the sizes for which the linings can be supplied. The binding of the pamphlet is in light eream colored covers with side title in black.

THE SPRINGFIELD STOVE WORKS OF Springfield, Mo., have been enjoying a good trade and have built up a business which has been exceedingly gratifying to the parent company of Cleveland. They obtain their pig from Alabama, their coke from Pennsylvania and their coal from Kansas. We understand that they give employment to about 100 hands when running full, and dispose of their product in Missouri, Arkansas, Texas, Arizona, Kansas, Nebraska, Utah, New Mexico, and have also made shipments to Iowa, Minnesota and Illinois.

THE TROY NICKEL WORKS, Troy, N. Y., are distributing to their friends in the trade a little pamphlet of a size convenient to carry in the vest pocket and bound in colored paper covers. It is entitled "The Hands," and its pages tell how to keep them white and clean and free from burns. The first way, it is told, is to insist on having Alaska trimmings on your stove. In the sec-ond place, one will need an Alaska lifter, poker and shovel. Third, when the cake is burning and there is no time to look for the cloth, you will not ourn your fingers if you have an Alaska knob on the oven door. The fourth statement is to the effect that the Alaska trimmings are nicely nickel plated and will not soil the fingers. The moral is, to use only Alaska trimmings if one would keep the hands white and free from burns. A celendar for the month of August occupies the last page of the little pamphlet.

"The Economy Heaters" is the title of a 32-page pamphlet which reaches us from the J. F. Pease Furnace Company, Syracuse, N. Y. The text illustrates and describes the Economy patent warm air furnaces, patented by John F. Pease and manufactured by the company named. The features of construction are covered in such a way as to enable the dealer to readily understand the arrangement of parts and operation of the heaters, while tables presented in connection with the illustrations show the various sizes in which the goods are made, their weight, dimensions and capacities. There are also given a number of letters from some of

those who have used the company's goods. These are taken from the pamphlet entitled "Opinions and References," a copy of which, we understand, will be mailed to any address on application.

Wood, Bishop & Co., 41-42 West Market Square, Bangor, Maine, favor us with a copy of a 32-page paniphlet descriptive of the Monitor and Climax wood furnaces, which they manufacture in several sizes. The Monitor is made in portable form and also for brick setting, being designed to meet the requirements for a simple, heavy, durable and powerful heater. The fire box is of corrugated cast iron, the drum of heavy plate iron and the radiator of heavy sheet fron, the latter being an important feature of construction. Climax wood furnace has been brought out to meet the demand for a low priced construction. This has a heavy corrugated cast iron fire box, the same as that used in the Monitor wood furnace. The radiator is also of cast iron, the feed door is extra large, and when so ordered is furnished with an apparatus for regulating the furnace from the rooms above. A portion of the pamphlet is given up to testimonial letters from some of those who have used the heaters of the company.

The Mt. Penn Stove Works, Reading, Pa., are sending out circulars illustrating their new goods. In ranges they show the Penn Item, a low priced aix hole range, cut top, duplex or plain flat grate, and with or without reservoir; and the Penn City, a low priced solid end hearth range, six holes, cut top, bailed ash pan, duplex or plain flat grate, and with or without reservoir. In heating goods they describe the Penn Coin, a straight draft surface burner; the Penn Pride, a surface burner with half revertible flue; the Penn Pearl, a surface burner with full revertible flue. The heating stoves all have large sliding feed doors, with fire brick linings extending above the doors. Extra deep ash pits with large ash pans, and shaking center discharge grates with poke holes, and are surmounted by handsome spun urns.

"Hot Water Heaters and Warm Air Furnaces" is the title of a pamphlet issued by the Peninsular Stove Company, Detroit. The inside title page is given up to the announcement that a written guarantee accompanies every Peninsular furnace. The illustrations in the publication show the Peninsular patent duplex grate, the Peninsular hot water and warm air combination, the Peninsular furnace, the Famous Peninsular, the Radiant Peninsular, the Carbon Peninsular and the Peninsular wood furnace. In addition to these illustrations there is presented a long list of references and many testimonial letters.

ISAAC A. SHEPPARD & Co. of Philadelphia have issued a four-page circular descriptive of their Paragon steel plate furnace. Round and octagon base furnaces are the subjects of illustrations of large size, the interiors being por-trayed in section. The round base fur-nace is described as being made in six sizes, with curved cylinder and frictionless draw center grate and heavy sheet steel drums, and the octagon base fur nace is stated to be adapted to three different arrangements of grates and cylinders. The Paragon furnaces are made on the three-drum principle, and the makers claim for them the following advantages: That the inner and outer combustion chambers communicate with each other in such a way that all the radiating surfaces of both chambers are equally heated; that both combustion chambers are absolutely self-cleaning, and that both upper and lower radiator eastings are made in one piece, and there are no joints between east iron surfaces above the fire pot level. The circular contains a few testimonials received from one customer, space not allowing of the use of more, and, in the words of the manufacturer, published as "a straw to show which way the wind blows."

The Ringen Stove Company, St. Louis, Mo., who are well known as manufacturers of the Quick Meal gas and gasoline stoves, have now added to their line an oil heating stove known as the Electric. This stove will be made in four styles and sizes. A small catalogue is now in course of preparation, illustrating and describing these goods, which will shortly be mailed to the trade.

THE SMITH & ANTHONY COMPANY, Boston, report a good demand for the Royal Hub and Queen Hub ranges, which they claim possess all the features necessary for a perfect cooking apparatus. They also refer to their Hub Royal square heater, which is already favorably known to the trade. This stove is said to possess many excellent features. It is of the revertible flue type and has a space between the fire box and the diving flue, at either side, communicating with an opening at the bottom of the stove through which the cold air is taken from the floor, heated and dis-charged at the front and back of the The magazine is titted with a stove. cover that closes on an asbestos seat, and which is secured by a tightening latch, rendering the admission of air into the top of the magazine impossible and preventing combustion. The grate is so arranged as to force the air entering to strike the center of the fire and thoroughly mix with the gases, promoting the combustion. The fire can also be thoroughly cleaned with a minimum of labor and without the escape of dust. It is claimed, with proper management, that fire cau be kept in this stove without attention for several days. Their Hub heater is of the cylinder type with Russia iron body and works on the down draft principle. These stoves have been subjected to practical tests and have established reputations on their merits.

IN FITTING OUT A KITCHEN, whether in a residence or hotel, almost everything needful can be supplied by the Walker & Pratt Mfg. Company, Boston. Their Columbia and New World are cast iron ranges, which have a well earned reputation for attractiveness of appearance, convenience in use and ciliciency in operation. The New World range is provided with a handsome copper plate oven panel, bearing in has-relief a representation of the Landing of Columbus. The steel ranges are made in small sizes, and are also sdapted to be extended to long lengths with several fires for hotel service. They also manufacture warming tables, collee urns and pastry ovens.

BERGSTROM BROS. & Co. of Neenah, Wis., are distributing large blotting pads with one side devoted to advertising their heating stoves. Four styles of these pads have come to hand. One illustrates the Elmhurst surface burner; another, the new construction of the Elmhurst for 1894; a third, the Royal Oak, which was entirely new last season; the fourth, parlor stoves for the

exclusive use of wood, comprising the Spark in three sizes and the Tacoma in

THE LINE of heating apparatus manufactured by the Barstow Stove Company, Boston, has been extensively em-ployed in school houses in connection with the remodeling of the ventilating systems to meet the requirements of the State law. The company issue a pamphlet devoted to this special branch of work.

A PERSONAL LETTER from Frederic Gardner, Western manager of the Michigan Stove Company, Chicago, calls attention to accompanying leaves, intended for insertion in their latest catalogue. The leaves are paged and are precisely like the catalogue leaves, but in their separate form are very fine circulars. One refers to the Carbon-Garland, which is characterized as a parlor furnace for soft or hard ecal. This stove is highly ornamented and beautifully modeled. It is so made that the entire ornamental part is separate from the fire chamber and can be drawn away, thus rendering the latter easy to repair. The combustion chamber is styled a seamless retort, is made in one piece with a dome top and is so constructed as to gain a reverberatory flue, while the chamber is clougated so as to preveut smoke from coming out of the door. It can be used as an upstairs heater if desired. Some peculiar features are that the grate and fire pot are stated to be about inches nearer the floor than in other stoves of similar construction and the stove is made absolutely air tight to insure its being a first-class "fire keeper." The other circular treats of the Maple Garland, which is a first class highly finished base heater, for wood only. In this stove the wood rests upon the bottom and not on a grate. This gives more heating surface and brings the heat nearer the floor. The entire top opens to admit chunks, although there is an extra large feed door. The hot air circulating flues are exceedingly large. In external appearance this stove resembles high grade coal base burners.

WE ARE INDEBTED to the Fuller & Warren Company, Troy, N.Y., for circulars relating to some of their specialties. The cards show the Splendid base burner, the F. & W. Company's Splendid Stewart and the Art Splendid, three handsome stoves for parlor heating. The F. & W. Company's Splendid Stewart is entirely new for 1894. It is described as not a high priced atove, but embodies all the valuable features incorporated in their best base burners. A very pretty card issued by the same concern shows the P. P. Stewart stoves as made in 1838 and 1894, the halftone engravings placed in juxtapositiou, bringing into prominence the improvements that have been made in the last 50 years. The original Stewart stove was brought out in 1838.

THE KERNAN FURNACE COMPANY. Utica, N. Y., issue a new catalogue relating to their well-known line of Kernan warm air furnaces for soft coal. The pamphlet begins with a general treatise on burning soft coal and the advantages of it as compared with hard coal in the matter of price. Then attention is directed to the Kernan smoke consumer, A series, which is a furnace especially adapted for the use of soft coal. Various views are given of this apparatus, and all its constructive features are carefully explained, so that the buyer understands exactly how it is that the construction employed facili-

made aud on what principles it operates. The B series is similarly illustrated, and then attention is given to their patent hexagonal grate, which is used in all the smoke consuming furnaces. A number of pages in the mid-dle of the catalogue are devoted to testimonial letters from customers who have used these soft coal furnaces with the most excellent results. The Kernan system of heating and ventilation is next explained, with diagrams showing the arrangament of heating ducts and ventilating ducts in school houses. At the close brief reference is made to the Kernan hard coal furnaces.

ROUND OAK STOVE WORKS, DOWAgiac, Mich., resumed operations July 24, 300 men being employed.

### Security Gas Broiler.

In the accompanying illustration we present a view of a two-burner gas tates the broiling action of the meat. and that it is more uniformly cooked to its center without burning the exterior Unlike the usual practice in portions. broiling, the drip is preserved instead of being lost in the fire, and thus are avoided the odors arising from wasted hurned drip, which often injure the flavor of the meat. Other sizes of stoves made by the company are provided with four burners in the top surface and have ventilated baking and roasting ovens, warming closet and water heater. A pamphlet which the company have issued illustrates and describes these goods.

A bullet proof shield, the invention of W. F. Leonard of Brooklyn, was tested last week by the military authorities at Governor's Island, New York, with the result that balls that would have penetrated 20 inches of pine were successfuly resisted by the shield. The dictum of the military others is that the object



Security Gas Broiler.

range with barbecue steak broiler, which is being offered the trade by L. B. Jones & Co., successors to the Se-St. Louis, Mo. The body of the stove is black japauned, the doors have nickel borders, nickel name plates and nickel monogram in the center of the japanned panels, nickel knobs, hinge pins and valve wheels, which form a striking contrast with the black por-tions of the body. The important feature of this construction is the steak broiler, which occupies the lower portion, the engraving showing the door open. It will be noticed that the broiler is retained in a vertical rather than horizontal position, the heat com-ing from the sides. Directly beneath is a drip pan for catching the drippings from the meat while in process of cooking. The arrangement is such that the dripping is not burned by the application of extreme heat, as the pan is below the side burners. It is claimed

possesses remarkable resisting power and would turn any rifle bullet, but that the material of which it is composed is too heavy for wearing by soldiers, although it might be useful for protection to field guns. The inventor has already practically tested. ventor has already practically tested the shield by standing up with it to be shot at by a Winchester rifle.

D. Willis James, who has been for some time director of the factories of the Central Stamping Company, 23 and 25 Cliff atreet, New York, has resigned his position and severed his counection with the concern.

Work on the new American liners, St. Louis "and "St. Paul," is being actively earried forward at Cramps' shipyards. The "St. Louis" is nearly plated and her interior fittings are being put in. She will probably be ready for launching by October. The "St Paul" is not quite so far advanced, but she is reported as being also nearly all plated.

# TRADE REPORT.

### The Iron Market.

While modest progress is being made in firing additional Coke ovens, the rate is distressingly slow. The scarcity of the fuel is the dominating factor in the Western Iron trade, and indirectly, of course, affects the Eastern producers. Some of the latter, being largely dependent upon the Connellsville region, suffer. Others are gainers, since the Western works are practically letting the Eastern markets alone. The Eastern mills are therefore taking what current work is coming out, and the breathing spell they are enjoying gives their local markets an air of greater cheerfulness.

In the West the Pittsburgh and Chicago districts are pretty nearly taking care of the requirements of buyers, which on the whole are not great. The movement among Southern fur naces which have long been idle to resume operations is somewhat puzzling. It is pretty well known that the best managed plant in the Birmingham district has stopped because there is no money in making iron, and yet these other concerns, known to be less advantageously equipped and supplied, are again getting ready for the fray.

Pig Iron. - The majority of sellers in the New York market continue to complain of extreme dullness. One case, however, is cited in which a consumer placed an order for delivery during the balance of the year who has thus far persiatently purchased in small lots for immediate delivery. Virginia Irons continue to crowd the market at low prices, relatively little being heard of Alabama brands in that way. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tldewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1. \$10.50 @ water. Southern from, same derivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25.

Very little change is noted in the Philadelphia Pig Iron market. Prices are steady, but the demand has not been active enough to cause any further stiff-fening, notwithstanding the extremely light supply. Alabams Irors are virtually out of the market, and with the recent advance in freights Western brands cannot be sold at the low figures remeet with less competition. The foundry trade is a good deal depressed, and some of the large concerns begin to doubt whether they will find any larger business than they did a year ago. The chief strength of the market arises from the light stocks, small output and higher cost of production, but from present appearances there is not likely to be any material change in prices, unless the de-mand assumes larger proportions than at present. General asking prices are about as follows for Philadelphia and near by points:

 Standard No. 1 Foundry X.
 \$12.50 @ \$13.00

 Standard No. 2 Foundry X.
 11.50 @ 12.00

 No. 2 Plain.
 10.75 @ 11.00

 No. 1 Soft.
 11.50 @ 11.75

 No. 2 Soft.
 10.75 @ 11.00

In the Chicago market dealers in local Coke Iron report only limited sales and very light inquiries. Large consumers who have not yet covered their season's requirements are postponing negotiations until labor troubles have been completely settled and per-haps until the tariff agitation is ended. Almost nothing is doing in Southern Coke Iron and Lake Superior Charcoal. The condition is one of midsummer dullness. Shipments are still interfered with by the irregular movement of freight on some railroads. Quotations are given as follows for cash:

 are given as follows for cash:

 Lake Superior Charcoal.
 \$14.50 @ \$15.50

 Local Coke Foundry, No. 1.
 10.75 @ 11.00

 Local Coke Foundry, No. 2.
 10.00 @ 10.50

 Local Coke Foundry, No. 3.
 9.59 @ 10.00

 Local Soctch.
 10.75 @ 11.00

 Ohio Strong Softeners No. 1.
 13.00 @ 13.50

 Southern Coke, No. 2.
 @ 10.75

 Southern Coke, No. 3.
 @ 10.75

 Southern, No. 1, Soft
 @ 10.75

 Southern, No. 2, Soft
 @ 10.50

 Southern No. 2, Soft
 @ 10.50

 Alabama Car Wheel
 17.50 @ 18.00

 Jackson County Silvery
 15.00 @ 16.60

The Pittsburgh market continues barren of large transactions, but sales of small lots for close delivery are more plentiful. The few transactions going for Foundry Iron are for small lots of 50 and 100 tons and prices are unchanged. For forward delivery the following quotations are made:

There has been an undertone of confidence in the Cincinnati market for Southern Pig Iron during the week, under light offerings and a good job under light offerings and a good jobbing demand, with sales to the extent of the offerings, chiefly in single carloads, and mainly of No. 2 Foundry and No. 1 Soft at \$7.50 \$7\$ ton, f.o.b. Blrmingham, or on that basis. There are inquiries for lots of 5000 and 6000 tons of Foundry grades for Eastern shipment, but there seems to be no one disposed to sell in advance of production while the tariff bill is pending. In the present unsettled condition of the trade no change in quotations is justified, but it does not seem improbable that higher prices may soon be obtained Quotations are as follows:

Southern Coke, No. 1 \$	10.25 @	\$10.50
Southern Coke, No. 2	9.50 @	9.75
Southern Coke, No. 3		
Ohio Soft Stone Coal, No. 1	14.50 @	15.50
Ohio Soft Stone Coal, No. 2	14.00 @	14.50
Lake Superior Coke, No. 1	$12.50\ \widetilde{a}$	13.00
Lake Superior Coke, No. 2	11.50 G	12.00
Hanging Rock Charcoal, No. 1		
Hanging Rock Charcoal, No. 2	15.50 @	16.00
Tennessee Charcoal, No. 1	13.00 @	13.50
Tennessee Charcoai, No. 2	12.00 @	12.50
Standard Southern Car Wheel		
Lake Superior Car Wheel and	20140	27,00
Malicable	18.35 @	16.75

A trifle more activity is noted in the St Louis market, although as yet it has only resulted in sales of moderate size. Indications point to a grad-ual increase in the demand as manufacturers are working more steadily and are gradually increasing their output. The constant decrease in the amount of Iron on the furuace banks leads many to believe that there will be a scarcity before the year is out. At present No. 1 Soft and No. 2 Foundry are difficult to obtain, and prompt ship-ment is only secured at full prices No. 2 Foundry is quoted at  $$10.50 \oplus $10.75$ , f.o.b. cars, St. Louis, and there is no great urgency to sell at these figures.

We quote as follows for cash, f.o.b. ears St. Louis :

Southern Coke, No. 1 Foun-

 dry
 9.75 & 10.00

 Southern Car Wheel
 16.50 @ 17.00

 Ohio Softeners
 14.00 @ 14.50

#### Metal Market.

Pig Tln.-Steady additions to the already excessive spot supply, with a consumptive demand which falls short of those additions, have exercised a depressing influence on the market. A downward course to London prices has also had a heavy effect. Consequently the market has had more or less of a ragged appearance throughout the week. Small parcels from store have been sold at about ½¢ below previous quotations; and for Straits Pig jobbers are now asking from 20¢ to 20½¢ ? lb. The bulk of retail husiness goes, however, at the larger figure. Importations so far this month have reached about 1200 tons, which is equal to the highest estimated consumption for an entire month.

Copper.-Dealings have been on a moderate scale and the demand is without visible improvement. In short. there is little doing outside of making deliveries on old contracts; but, in the absence of any pressure to sell, prices remain quite steady. The moderate business effected by retailers was at about 101¢ P lb for Lake Ingot in small lots.

Sheet Copper.—Orders and inquiries continue on a very moderate scale. The former are usually for very limited amounts, intended for present use. Interest in forward business is very slack. Prices for small jobbing quantities are firm, on a basis of 15¢ net.

Pig Lead -Light spot supplies, along with tariff probabilities, have served to put more stiffness into the market for Pig Lead, and prices have been marked up to the extent of 0.25¢ @ been marked up to the extent of 0.204 (a) 0.304 (b) The buying movement has not, however, been at all brisk, and business done during the week makes but a moderate showing. Jobbers' prices for small lots of American Pig are firm at 37¢ @ 4¢, tending more to the higher figure.

Lead Sheet and Pipe. - Extreme dullness has marked the trade in Manu factured Lead in this vicinity. Prices are almost down to the present level of Pig Lead, yet the buying interest continues very tame. Building operations do not expand to any extent, and the outlook is not regarded as bright by the manufacturers, who can see no prospect of advancing prices at present. In any case an improvement in business is not looked for before the fall. Some of the larger dealers in plumbers' supplies report a fair demand, but these are the exception to the general rule of dullness.

Spelter.-Little change has taken place in prices and the demand is without visible improvement, but sellers offer with more or less reserve in view of moderate output at the present time. Quotations remain at about  $4\frac{1}{4}\phi$  for limited quantities of ordinary Western.

Antimony. — The market remains quiet, with only a small routine trade passing. Prices are steady at about 10% for Cookson's and 10% for Hallett's, in small lots.

Nickel.—Sales have been made of moderate quantities at  $40\phi \otimes 42\phi$ , and the market is rather easy.

Fin Plates.-The stereotyped tale of dullness which has been iterated monotously from week to week for so long is the only one which has fitted this week's market. Little or no improvement can be noted. Buying has almost entirely been confined to small orders for spot goods and future deliveries have attracted only the feeblest interest. The only line which can be said to bave been at all active is American Roofing Plates, which are in good demand. These, being largely purehased directly from the makers, do not appear as an important factor in the general market. Nevertheless the consumption must be tolerably large, as almost all the domestic works are reported as being busily occupied in turning out material to fill orders while some have contracts on their books which will suffice to keep them busy for the next two or three months without any further orders. The output of American Roofing Plates, too, has increased materially since the beginning of the year. Prices in the general market show a soft tendency, although no radical change is noted.

A special cable dispatch from London to The Iron Age, dated July 25, thus describes the British Tin Plate market: The Tin Plate market has been weak. Inquiries are few and limits on bida are generally lowered, and this prevents business. Uncertain reports regarding American tariff legislation also have unfavorable influence. On open offering prices are about 3 pence lower than they were last week. Prices f.o.b. at Swanses are as follows:

Bessemer Cokes, 14 x 20,		a	10/
Siemens Cokes, 14 x 20			10/3
Ternes, double box			19/
Charcoals	11	(0)	13/

Black Plate has met with rather slow sale. Prices are easy at about £7. 17/6 for Bessemer and £8, 2/6 for Siemens.

Sheet Iron.—The Western mills are reported ss busy, with a good run of orders and inquiries. Jobbers in this section, nevertheless, report a limited demand and tame inquiry, except for Black Sheets for tinning, the demand for which is just now in excess of the supply. With the starting up of a number of Tin mills since the signing of the wage scale the supply will, however, gradually increase and probably be equal to current requirements. Prices show no improvement. Galvanized Sheets in small lots are quoted generally at 75 and 5 % off.

Texas cotton crop prospects are exceedingly bright. Reports mention a probable yield of 2,500,000 bales, and it is thought doubtful if the crop can be harvested unless the fall is an open one so as to allow of picking until the end of the year.

Columbus, Ohio, and Cincinnati, are to be connected by an electric line over the National Road, running through London, Springfield and Dayton. The road is already completed from Cincinnati to Dayton, and the entire line is to be finished by the end of 1896.

## Chicago Report.

Scrap.—Old material is in very little demand at present. Dealers quote the following list of buying prices, Chicago delivery:

Per	uet ton.	Per lb
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3,60	
Sheet Iron and Hoops,	2.00	
Plow Steel and Breaking		
Stock	4,00	
No. 2, such as Shovels, Hoes,		
&c	3.00	
Old Boiters-whole (Iron)	8.00	
" (Iron)—cut in single		
Sheets and Kings	5.00	
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3.00	
Turnings	4.00	4.1
Horseshoes	5.00	
Copper Bottoms		5360
Copper Clips and Heavy		7 3
Heavy Brass		540
Light Brass		3 0
Pipe Lead		2140
Tea Lead		5 4
Zine		2 0
Rubber		
***************************************	• • • •	3121

Anthracite.—The movement is light. Carload lots of 12 net tons or over are quoted as follows:

	Egg, Sto.	
	Grate.	and Cb
Chicago, Ill	<b>₹</b> 5.25	<b>\$</b> 5.50
Milwaukee, Wis	5,25	5.50
Kansas City, Mo	8.45	5.70
Council Bluffs, Iowa	8.45	8.70
Lincoln. Neb	8.6 -	8.85
Sioux City, Iowa	8.45	8.70
Aberdeen, S. Dak	8.50	8.75
Dubuque, Iowa	6.55	6.80
Madison, Wis	6.75	7.00
St. Paul, Minn	7.75	8.00
Burlington, lowa	6.75	7.00
Des Moines, lowa	8.20	8.45
Davenport, Iowa	6.55	6.80
St. Joseph, Mo	8.45	8.70
Leavenworth, Kan	8.45	8.70
Omaha, Neb	8.45	8.70

#### Colorado Anthracite.

#### OOLORADO FUEL & IRON COMPANY.

Denver	\$8.00
Pueblo	8.00
Colorado Springs	8.00
Leadville	8,00
Cheyenne, Wyo	10.00
All points between Denver and	
Missouri River	8.85

The experiment of shipping naphtha in bulk was made last week for the first time, by the steamship "Heligoland," which sailed from Philadelphia for Hamburg carrying 1,200,000 gallons of the oil in tanks. Hitherto, owing to its dangerously explosive character, the fluid has been shipped in carefully potected barrels. A great deal of interest is felt in shipping circles in this new departure.

Heavy sugar importations continue at the ports of New York, Boston and Philadelphia. Not only sailing vessels but transatlantic ateamships also have been temporarily diverted from their deep sea routes to accept the high freights offered by the Sugar Trust for spot eargoes.

A statement recently issued from the Comptroller's office at Albany, N. Y., shows that the number of New York corporations on the books for taxation has increased since January I from 2513 to 5944. The sworn statements of the old corporations exhibited an average decrease of 27 per cent. In the value of the capital stock as compared with last year.

#### CONDITION OF THE

# Hardware Trade.

MANUFACTURERS and their representatives usually refer to busresentatives usuarly refer to bus-iness as very quiet, but further inquiry generally develops the fact that some trade is doing. A good many travelers are on the road, but they are not all out as yet, the condition of business making their work, so far as immediate returns are concerned, rather disappointing. The importance of keeping in touch with the trade and securing such business as is going makes some enterprising houses regard the present as a good time to cultivate their customers and form new connections, if possible, and thus lay the foundation for future business. The uncertainty in regard to the Tariff bill is still exerting its depressing influcuce, and the doubt as to what will be the final outcome is at the present time having an exceedingly unfavorable effect. In the matter of prices there is little to report. Comparatively few open changes have been made by man-ufacturers, but in a good many lines the gradual declines which have been taking place as small extra discounts have tollowed one another have low-ered the price of a good many leading Under these circumstances it goods. Under these circumstances it is not surprising that there is something of a lack of uniformity in quotations as made by the different manufacturers and by the leading jobbing houses. The careful buyer, whether connected with the wholesale or the retail trade, is required to give much attention to prices that he may be enabled to place his orders indiciously. abled to place his orders judiciously and to the best advantage. There is and to the best advantage. There is a perceptible tendency on the part of leading jobbers to quote what would in ordinary circumstances be regarded as very close prices to their retail customers, and the market is feeling the effect of the "cut prices" thus made.

Advices from Chicago.—The demand for Shelf Hardware has steadily improved since the termination of the railroad strike, and business is now in very much better condition than it was two weeks since, but there is still room for considerable improvement. Orders are small but numerous, and of such a character that unusually close attention must be paid to their trade by traveling salesmen. Merchants appear to order what they need every day and are seldom anticipating their requirements for even a week. The salesman on the spot gets the order. Here and there a new stock is being put in by some one who sees an opportunity for engaging in business, but new ventures are much less numerous than in previous years. Some little demand is reported for fall and winter goods, but as such orders are entered for future delivery, they are having no effect in the present movement of merchandise. A hopeful feeling prevails among the jobbers in this vicinity owing to the encouraging reports received from their representatives regarding the crops in the different sections tributary to this market. Overflowing granaries, they believe, mean a much better business among farmers, notwithstanding low prices for grain. The Heavy Hardware trade is in good condition, although the demand is almost entirely for small lots. These orders, however, are quito numerous, and every day piles up a good aggregate.

## Notes on Prices.

Wire Nails.—The Wire Nail market continues without special feature, the mills being shut down and manufacturers are refraining from making special effort to secure orders. They apparently regard the outlook as promising for the maintenance of present prices. and some of them refer to the fact that if the fall trade should set in with any degree of vigor there would probably be a stiffening in the market. mean time the volume of business is light, as merchants are indisposed to place orders in excess of their requirements, and in the present condition of business their immediate needs are not Quotations continue en the large. basis of \$1.15 for carload lots at mill, a figure which is, however, sometimes shaded, but none of the manufacturers are willing to quote lower than \$1.10. The New York price for small lots from store is \$1.30 to \$1.35.

Advices from Chicago.—The fall trade seems to be starting up and some buying from manufacturers is going on even in Chicago, which has been thus far troubled with a surplus stock. Manufacturers are very confident that they will be able to maintain prices. They seem to have control of the situation and are not disposed to press sales and sacrifice what little advantage they may have at present. Factories will start up about August 1. Prices on factory lots range from \$1.18 to \$1.25, Chicago. Jobbers report that their customers are not disposed to buy heavily, but are acting very cautiously, as they do not wish to be caught in a decline. The movement of Nails, as well as other staple goods, is increasing to some extent, and better business is looked for from this time forward. Small lots from stock are quoted at \$1.25.

Cut Nails—In the present state of trade the volume of business in Cut Nails is naturally light, but the manufacturers are adhering quite firmly to prices which have prevaited for the past tew weeks. The Eastern market is represented by the quotation of 95 cents to \$1 for carload lots on dock. The store price for Cut Nails in New York is \$1.10 to \$1.15.

Advices from Chicago.—Inquiries are improving, but the volume of business is still only moderate. Prices are a trifle firmer and mill shipments may now be quoted at 95 cents, Chicago, for 60-cent average. Small lots from jobbers' stocks are selling at \$1.15.

Barb Wire.—There is as yet exceedingly little movement in Barb Wire and prices are unchanged. Manufacturers are refraining from making important concessions in order to secure business, and some of them express hopeful views in regard to the fall trade. The market is represented as at our last report by the following prices for Four-Point Galvanized delivered at the points named, but it is thought that concessions from these prices could be obtained on attractive orders: Pittsburgh, \$2.05 to \$2.10; Cleveland, \$2.10 to \$2.15; Cincinnati or Allentown, \$2.25 to \$2.30; Chicago or New York, \$2.25 to \$2.30.

Advices from Chicago.—The movement is light but there is still no indication of unessiness among manufacturers. They are probably in a better position to sustain prices than for many months. Their raw material is firm and besides a good understanding prevails among them now and any changes in price seem to be made in unison. Jobbers quote small lots of Galvanized Barb Wire from stock at \$2.35 to \$2.40, with 10 cents off for carload lots. Quite a brisk trade has been done in some quarters in Plain Wire, on which recent advances are well sustained.

Utility Washer.—This Washing Machine was described in our issue of 21st inst. It is manufactured by Olds Wagon Works of Fort Wayne, Ind., by whom it is sold to the trade at \$2.75, net

Sargent & Ce --In connection with their new catalogue, Sargent & Co., New York, and New Haven, Conn., issue a discount sheet of special interest to the trade. It gives not only the discounts on the very large and important line of goods of their own manufacture, but also on an extensive assortment of general Hardware, which includes many leading goods. Those prices are carefully revised up to date.

Cabinet Locks.—The prices on Cabinet Locks are unsettled and the market is in an unsatisfactory condition. This is largely the result of the new competition which recently entered the field, carnest efforts being made by them to obtain business, while the old manufacturers are apparently determined to hold their trade.

Padlocks.—While there has been no open change in the price of Padlocks, there has been for some time a weakness which results in somewhat lower quotations than prevailed a few months ago. There is some unevenness in the quotations of the different manufacturers, who are evidently desirous of securing such orders as may be within their reach.

Wrought Goods.—The market for Wrought Iron Goods is in an unsatisfactory condition, prices being low and irregular, low quotations being more readily obtainable by the smaller trade than is usually the case.

Bright Wire Goods.—The demoralization in the price of Bright Wire Goods, to which we referred some time ago, still continues and the market is lower and somewhat irregular. Manufacturers appear to be giving discounts which approximate their extreme prices somewhat more freely than a short time ago, and many of the leading jobbing houses are quoting this line of goods at low prices.

Screws.—The Screw market is at present an open one, the agreement which has existed among the principal manufacturers having terminated June 30. Whether or not there will be a renewal of it is a question, but it is understood that some conferences have been had with this end in view.

Double Pointed Tacks.—An advance has been made by the manufacturers of Double Pointed Tacks, and as a result the market is in a better condition than for some time.

Glass.—The demand for American Window Glass shows no improvement since our last review, although the volume of business is, of course, greater than a few weeks since. The bulk of the business done is in small lots to meet immediate needs. Manufacturers and jobbers are watching the tariff question closely, and conducting their business in such a way that, in the event of the passage of any low tariff measure, they will have little or no stock on hand. The Pittsburgh quotation on Window Glass continues at 80 and 20 per cent. discount, a price which is reported to be firmly maintained. Plate Glass is in fair demand. Quotations for New York and New England, on the Eastern list, are 70 per cent. discount for sizes 5 feet and over, and 70 and 10 per cent. discount for sizes 5 feet and under. For the West quota-

tions are reported as 70 and 5 per cent. discount for sizes over 10 feet, and 60 and 20 per cent. discount on sizes 10 feet and less, Western manufacturers' list

Old Metals -- The market for Old Metals continues quiet, with values practically unchanged. The following quotations represent about the prices now paid by New York dealers:

Heavy Copper b
Light and Turned Comper 夢 ഥ っ 🎏
Heavy Brass
Light Brass W D 4 6
Lead.
Tea Lead
Zinc
No 1 Pewter
No. 2 Pewter White
Wronght Serap Iron, Figress ton \$5 (d. 55 of)
Heavy Cast Scran . # gross ton T & 199
Stove Plate Scrap P gross ton 4.00
Burnt Iron 9 gross ton 2.00

Old Rags, Paper, &c.—A quiet market is reported, with prices at about their former level. Dealers' prices, New York delivery, are as follows:

No. 1 White Rags	Ъ	31%	Œ,	31/90
No. 2 White Rags	11	2	(d.	21, 0
Mixed Rags	ľb			5,0
Blues and 3ds	lb	1	(d)	11/4
Hard Sized White Shavings	Tb.	226	a	28/4
No.1 White Book Snavings	b	187	a	21,0
No.2 White Book Shavings	ь	11%	(a.	11.0
Light Book Shavings	D	. 7 0		8/4 €
No. 1 Mixed Shavings	D	1	a	174
No. 2 Mixed Shavings	В			1 ¢
No. 1 Printed Books	1b	1 "	Œ.	11/4
Ordinary Mixed Books	Ъ	* 14	a	
	Ib	- 1	(0)	2-5€
Newspapers	ь		a	1 ¢
No. 1 Manila Paper	Б		ä	
No. 2 Manila Paper			w	140
Bogus Paper	Þ			Ba ¢
Common Paper	Ъ			
Straw Chips	Ъ			1/20
Binders' Clippings	Ъ			1/40
Jute Butts	Ib			136
No. 1 Jute Bagging₩	Ъ			1 4
Mixed Bagging₩	Ъ	8/4	(d)	1 ¢
No. 2 Bagging	10	- 34	0	1/40
Hemp Twine#	Ti.	, 2	Œ,	2349
Manila Rope	1	235	a	21/40
Jute Rope#		11%	(0)	18/4
Mixed Rope	Th	8/	a	76¢
mixed note				

Old Rubber.—Dealers' purchasing prices, New York delivery, are as follows:

Car Springs, ton lots, # 1b	@	<b>\$0.</b> 03½
Rubber Shoes, carloads, de- livered at factory, # lb		.04%
Rubber shoes, less than car- loads, # fb	a	.04
Large Hose, # ton	a	15.00
White Wringer Rolls, # D	(0.	.03%
White Syringes W Th	a	.6384

### Trade Notes.

Tubular Lanterns and Lamp Goods is the subject of the revised jobbers' price-list No. 2, issued by the Buhl Stamping Company, Detroit, Mich., under date of July 17. Jobbers desiring to secure a more attractive line are invited to inspect the pages of this catalogue, which show a number of most attractive articles. The greatest improvement in the current year is alluded to as their No. 15 Side Lift. They also call attention to their new No. 200 Lantern with extra large oil well and No. 2 burner. They invite special attention to their claims for the Square Top Lift, Dash Reflector and Enameled Lanterns and to the popular case assortments of their manufacture. The goods are illustrated in plain engravings and also in colors, descriptions being given together with price-lists, table of sizes and code words for telegraphing orders.

STRANSKY & Co., 27 Murray street, New York, are distributing to the trade a series of entertaining cards, labeled A B C Class, High Primary Class and Grammar Class, on which the questions and answers of teacher and scholars are recorded, being sums in arithmetic, the Stransky Ware being the subject discussed. The cards are cleverly worded and will entertain the trade.

THE PUGET SOUND HARDWARE & STOVE COMPANY have been organized at Tacoma, Wash.. with a capital stock of \$25,000. The incorporators are George D. Hanscomb, J. W. Clocs and Frank De Wall.

THE PLANT of the Youngstown Stamping Company, Youngstown, Ohio, manufacturers of Oil Cans and Tin Specialties, is in operation to nearly full capacity. The firm have a fair amount of business on hand, but the outlook for the future is not as encouraging as desired.

The Illinois Pure Aluminum Company, Lemont, Ill., have resumed operations, 50 hands finding employment. The company have just received an order from the Burean of Equipment of the Navy Department at Washington for a 60 gallon jacketed aluminum kettle for the cruiser "San Francisco."

THE PLANT of the W. Dewees Wood Company, McKeesport, Pa., manufacturers of patent planished aheet iron, was put in full operation on Monday morning, the 15th inst. How long the plant will be operated in this way depends entirely upon the receipt of orders.

THE CINCINNATI CORRUGATING COMPANY started up their rolling mills at Piqua, Ohio, last week, causing much rejoicing among the idle workmen,

TACOMA (WASH) CORNICE, MANTEL & FURNACE COMPANY have been incorporated, with a capital stock of \$20,000, in 200 shares of \$100 each. The incorporators are Paul W. Dreusike, and William A. McKinley. The business of the company will be to manufacture heating apparatus, cornice and mantels.

THE ZUCKER & LEVETT CHEMICAL COM-PANY and the Loeb Mfg. Company have consolidated, under the corporate name of Zucker & Levett & Loeb Company, with offices at 8, 10, 12 and 14 Grand street, New York. The new concern, with their increased facilities, are prepared to promptly execute ordera.

#### New York Trade School.

The new catalogue of the New York Trade School for the fourteenth season, commencing October 15, 1894, has just been issued. Although similar in get up and in its main features to those of former years, the catalogue contains some additional matter, which will be of special interest to the readers of The Metal Worker. Particulars are given of two new trade classes, to which brief reference has already been made in these columns, namely—a day class in steam and hot water heating and a day class in tinsmithing, roofing and cornice work. These are both trades in which such instruction as is given in the New York Trade School is sure to be popular and appreciated. Full particulars in regard to these classes will be found in another part of this issue.

A melancholy feature of the first page is the disappearance from the list of trustees of the honored name of the founder of the school, Colonel Auchmuty, whose death since the isanc of the last catalogue is suitably announced. A copy of the minute of the Board of Trustees relative to his death is also presented. The name of R. Fulton Cutting appears as president of the board, and Archibald K. Mackay fills

the vacancy caused by Colonel Auchmuty's death. In the list of Trade School committees that of the Master Plumbers' Association is unchanged, two changes are shown in the Master Painters' Committee and two in that of the General Society of Mechanics and Tradesmen of New York. Two new committees, from the Master Steam and Hot Water Fitters' Association and the New York Employers' Association of Roofing and Manufacturers in Sheet Metal, repectively, appear for the first A noteworthy change announced in this catalogue is the extension of the day classes from a course of three to one of four months. This alteration has been made in order to give time for the provision of instruction in plan drawing to each trade.

The plumbing classes remain under the superintendence of John Delehanty, and the general curriculum for both day and evening classes is unchanged. There will be two evening classes, lim ited to 75 young men in each. Manual instruction will be given to class No. 1 on Monday and Wednesday evenings and to class No. 2 on Tuesday and Thursday evenings, from 7 to 930 o'clock, the course of instruction being the same in both classes. Scientific in-struction will be given to both classes every Friday evening, from 7.30 to 9.30 o'clock. Instruction will commence on October 15 and terminate on April 4. During the last week of the course the examination will be held and certificates will be awarded to those entitled to receive them. A four months' day course of instruction in plumbing and gas fitting, including also drawing of plans, will be commenced on December 3, 1894, certificates being given on April 4. The instruction is given every day, from 8 a.m. to 4 p.m., except Saturdaya, when work is stopped at 2.30 p.m. The fee for the course is \$40, to be paid when the name is entered.

This class is limited to 120 young men. Last season the number of applications for admission was in excess of the capacity of the workmanship, and, to the regret of the management, many had to be refused owing to the lack of room. Entrance can be made commencing October 1, and applications will be received until the class is full. Young men are warned not to come to New York unless they have been notified in advance that their application has been accepted. The school, it is stated, will not be responsible for expenses incurred by young men who come to the city without previously ascertaining if admission can be secured.

Evening instruction begins on stated dates and is given in bricklaying, plastering, atone cutting, plumbing, house, sign and fresco painting, carpentry and blacksmithing. Day classes are held in plumbing, painting, carpentry, steam and hot water heating, Ensmithing, roofing and cornice work, and printing. All these trades are carefully and thoroughly taught by competent instructors. The fees for the evening classes range from \$12 to \$25 per course, and for the day classes from \$25 to \$40. During its existence no less than 4675 young men have passed through the New York Trade School, the day classes being represented in 38 different States, as well as in New Brunswick, Nova Scotis, Prince Edward's Island, and the Dominion of Canada.

J. G. Mallett, formerly located in Greenfield, Ind., has opened a tin shop at Defiance, Ohio.

#### CONTENTS.

<del></del>	
Editorials :	AGE.
Getting to Work Again	31
A Time to Push	31
Humidity	31
Loss of Animal Heat	
Cost of Humidifying	
• •	
Press Working of Sheet MetalsX	32
The Letter Box—	
Tank for Roof	34
Soldering Fruit Cans	. 34
Pattern for Flaring Article	34
A Rearranged Heating System. Illus	34
Tinning Malleable Castings	
	+1 00
Plumbing and Gas Fitting—	
Gas and Gas Fitting.—IV. Illustrated	1. 36
Water Closet Reservoir. Illustrated.	37
Sink and Basin Trap. Illnstrated	37
The Enterprise Gas Soldering an	nd
Plumbers' Stove. Illustrated	37
Calkin's Patent Expansion Bolt, Hin	
Traps and Vents	38
Cin Plates—	
The Decrease in Tin Plate	39
Serap	39
Aluminum Castings	39
Steam and Hot Water-	
Class in Steam and Hot Water Heating	r. 40
English Heating Practice	
Hot Water Heating from Steam Boile	r.
Illustrated	41
Heating Notes	41
Rooting and Cornice—	
Roofing and Cornice Instruction	42
Eave Trough Hangers. Illustrated	
Flashings	
Heating and Plumbing-New Work at	10
Contracts	43
Aluminum Boats	43
An Iron Project in Utah	43
The Retail Store—	
The Berry Clothes Sprinkler. Illus .	44
The Lebanon Broiler. Illustrated	
Starting and Conducting Business	41
Buhl Side Lift Lanterns. Illustrated	46
Stove Trade Notes—	
Concerning Prices of Stoves	47
The Comstock-Castle Stove Company	47
The Gem City Stove Company	47
Revolving Range Canopy. Illustrate	
The McClary Mfg. Company, Limited	
Gold Coin Stoves	48
Channon-Emery Stove Company	. 48
J. S. & M. Peckham Company	48
Odd Plates	., 49
Security Gas Broder. Illustrated	
Frade Report— The Iron Market	., 51
Metal Market	
Chicago Report	
Condition of the Hardware Trade	
Notes on Prices	
Trade Notes	
New York Trude School	
Metal and Miscellaneous Prices	55
Labor Exchange—	. 57
Help Wanted	
Situations Wanted	/(

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, August 4, 1894.

DAVID WILLIAMS, - PUBLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 Reade Street.	N
PHILADELPHIA 220 South Fourth Street.	
BOSTON146 Franklin Street.	В
PITTSBUROH Room 509 Hamilton Building.	Р
CHICAGO 59 Dearhorn Street, cor. Randolph.	С
CINCINNATIRooms 22-24 Pickering Building.	C
ST. LOUISBank of Commerce Building.	S
CLEVELANDS12 The Cuyahoga.	С

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

#### The Question of Guarantees.

It is now questioned in the heating trade whether the guarantee usually given in heating contracts, that the apparatus shall be competent to heat the building in which it is to be placed to a temperature of 70° F. in zero weather, does not open the way to loss. disappointment and worry on the part of the contractor, and give an undue advantage to owners of buildings. The estimate of cost on which the contractor makes his proposition to do the work for a stated sum is. of course, founded on the assumption that the building he guarantees to heat is of reasonably good construction. In the absence of accurate knowledge on this point he must assume this. To assume that the building is of the very best character would be to take the risk of an insufficient apparatus; to assume that it is of the poorest style of "skin" building would entail an estimate of cost so high that, in the majority of cases, the contractor would stand no chance of securing the contract. He is, therefore, compelled to take a middle course, and if the building turns out to be of the poorer sort he may often find that he has underestimated the extent and cost of the apparatus needed to make good his guarantee. We believe that few heating contractors have escaped this experience, and many will testify to more of it than is desirable or profitable.

#### A Reform Needed.

In the matter of such guarantees, some in the trade are beginning to urge that a reform is needed. If a contractor in good faith estimates for an amount of heating surface such as would be adequate for reasonably good construction, it seems a hardship that under his guarantee he must suffer for the shortcomings of other contractors who have preceded him, or, perhaps, for the parsimony of an owner who has built for speculative

purposes and has been unwilling to pay for good work. On the face of it, this is unjust, yet as the usual guarantee legally binds the contractor he cannot under the present system es cape the provisions of his agreement. In the matter of chimneys, contractors have learned that it is unsafe to put in heating jobs without a guarantee from the owner that the chimney flue shall be good and sufficient. Why not take another step and make the guarantee to heat to sufficiently warm a building during the cold weather to which it will be exposed hinge upon the owner's guarantee that the building shall he well constructed and reasonably impervious to drafts? An apparatus gnaranteed in the usual manner in a building erected in New York City was totally inadequate to do the work contracted for. The building was so badly constructed that in windy weather heavy velvet carpets were lifted from floors and slapped up and down like awnings over sidewalks. The contractor had no recourse and was obliged to nearly double the extent of the surface and put in a much larger boiler before he could satisfactorily warm the building. If in this case his guarantee had been made contingent upon good construction he would have met no difficulty in proving that, for a well built house, the surface originally specified was ample, nor that a house in which heavy carpets were disturbed, as stated, by incoming drafts was not a well built structure. This reform in the terms of guarantees being entirely reasonable a little persistent effort on the part of contractors in effecting it would be well expended.

#### Still Another Evil.

The present mode of drawing contracts for heating work entails another disability upon heating contractors, which is felt by the entire trade. The guarantee to heat a building to 70° F. in zero weather affords an excuse for postponing final payments which is seized upon by many owners with a readiness affording a good example of human selfishness. No matter how responsible the house may be that has executed the work, no matter how strongly it may be urged that the guarantee they have given legally binds them to supply any deficiency, should there prove to be a deficiency, these statements are met by the answer, "I do not yet know that you have done what you agreed to do," and on this ground payment is withheld. Perhaps this is the worst feature of the whole business, since contractors of repute are always ready to make good their guarantees whether they have received full pay for their work or not. Heating contractors

should be paid as promptly as other contractors, and contracts should be so drawn as to afford no excuse for withholding payments, as is now done, because of delay in the coming of weather cold enough to test the capacity of the apparatus. It is well that the trade has reached the conclusion that the ordinary forms in which heating contracts are drawn should be changed to remove their objectionable features, and by unity of action a reform can be effected.

#### Tin Plate Production.

Col. Ira Ayei's special report to the Treasury on the production of tin and terne plates in the United States during the quarter ended March 31, 1894, which is printed in another column, is of a highly interesting and satisfactory nature. Notwithstanding the depressed industrial condition of the country and the uncertainty regarding tariff legislation, which might have been expected to operate disastrously on the industry, the report shows a really remarkable degree of progress to have been made. Thirty-six reporting firms manufactured 38,260,411 pounds of tin and terne plates proper against an output by 39 firms, in the preceding quarter, of 27,351,241 pounds, an increase of nearly 11,000,000 pounds. The most striking fact, however, in connection with this output is that 27,765,162 pounds, or more than 72 per cent. of these plates were made from sheets rolled in the United States, and of this amount over 95 per cent. consisted of the lighter class of plates. In the previous quarter the proportion was 58 per cent., and in the quarter before that it reached but 32 per cent. The stride made in the production of American black plates for tinning purposes lighter than 63 pounds per 100 square feet is also a very satisfactory feature, which is clearly shown in the tables presented with the report. The total production of black plates during the quarter, by 18 reporting mills, was 30,070,701 pounds, against 19,676,910 pounds in the December quarter of last year, while more than 78 per cent. of this material belonged to the lighter class of plates. These show an output of 6,317,217 pounds in excess of that of any previous quarter under the Mc-Kinley law.

Director Preston of the Mlnt Bureau places the world's consumption of gold in the industrial arts at the value of \$50,177,300 annually, and that of silver at the coining value as \$27,554,280, making the commercial value at the commercial price of silver during the year (\$0.78), \$16,622,980.

# THE LETTER $B0X_{-}$

#### Flower Stand Fountain.

From Tink, Pana, Ill.-Please give me in The Metal Worker the plans and details of a fountain to be made of tin, suitable for a flower stand.

Note -We think if our correspondent will consult back issues of The Metal Worker he will find authorient information on this subject to cover his case. We would refer him to a show window fountain illustrated and described in The Metal Worker of May 3, 1890, page 31; also to show window fountain in the issue of October 15, 1892, page 36. There likewise was a design for a galvanized iron vase in the issue for March 25, 1893, page 41, that may be useful to him. The sheet metal fountain described and illustrated in The Metal Worker April 1, 1893, pages 42 and 43, is another design. We think by consulting these issues our correspondent will get suggestions that will enable him to design a fountain to suit himself.

### Pressure on Cylinder.

From J. G., Philadelphia.—In building filters I have allowed the city water pressure to fall on the outside of cylin-drical tubes of clay encased in metal jackets. A mechanical friend asserts that my tube will stand as great a liquid pressure on the inside as on the outside, which I deny. My theory is, that the cylinder with pressure on the out-side acts as an arch for strength, while if the pressure were admitted on the inside of the clay tube it would burst at much less pressure.

Answer .- We think our correspondent is undoubtedly right in his deduction. Where the pressure is applied to the outside of a cylinder, the material being arched, is subjected to compression, while if the water were admitted to the inside of the cylinder the material would be subjected to tension. It is needless to point out that clay has much greater strength to resist compression than it has to resist tension. A brick will stand great pressure, but it would not take any tremendous force to pull it apart, and the conditions of the case are parallel with the instance referred to by our correspondent.

### Wants to Build a Fruit Drier.

From Eastern Shore, Maryland.— 11 °C. O. F. Y." had given some idea of the capacity of the fruit drier he wishes, it would be easier to supply the information he saks for in The Metal Worker, April 28. Ilowever, I have made several for setting on the back part of a cook stove, with the smoke pipe running up through them. They were made of sheet iron or tin and sup-

the back of the stove; they were 24 inches wide, or wider, according to the width of the stove; 14 inches or more deep, from front to back, and from 24 to 36 inches high. I have made some with double boitom, perforated, so that the air which entered was distributed all through and too much air did not enter at one time. The stove pipe furnished sufficient heat for ordinary use. On the inner sides of the drier I riveted angle pieces for supporting shelves about 21 inches apart. The shelves were made inches apart. of woven wire, with a wire run around the outer edge to give them strength. The sides were perforated with some holes a few inches from the top, to give the air that came in at the bottom a chance to escape. The back and bottom were perforated with a inch holes, about an inch apart, all the way across at the stove, so that the hot air from the top and back of the stove could enter. Over the holes in the back I arranged a hood to collect the air and force it into the drier. I have also used a hot air furnace in connection with a large drier, the furnace aetting on one floor and the drier being arranged on the floor above. A large pipe—in fact, the full size of the casing of the furnace—ran up to the bottom of the drier on the floor above. This drier was 31 x 4 feet and stood 5 feet high. It was made of sheet iron and had trays made of wire, as described for the smaller drier. The drier had doors, so that the trays could be removed and the fruit moved higher up in the drier as the process of drying became more complete. From the top of this drier a large pipe went up through the roof of the building to let the air escape and induce a rapid current through it. I shall be glad to hear from any one who has a better plan for making fruit driers, as the season is at hand.

#### Lifting Power of Pumps.

From J. L. C., Brooklyn, N. Y.-I read in one of the back numbers of The Metal Worker that a pump, theoretically, should lift water to a hight of 34 feet, but in practice 25 feet is the usual Are there not pumps lifting hight. water from a much greater depth than 34 feet, and, if so, how is it done? How is the water forced to the surface from artesian wells?

Answer. - We do not recall the exact place from where our correspondent quotes, but we were evidently talking about lift pumps. The limit of hight to which water will rise in a vacuum is, as we there stated, 34 feet, but it is not practicable to set a pump at this hight. Water is undoubtedly forced from much greater depths than 25 feet, or even 34 feet, but the pump plunger must be brought within that distance. Water, for lnstance, is pumped out of mines several thousand fect in depth. One old practice for doing this was to make long wooden piston rods, workported by brackets which were bolted to | ing them from the engines at the mouth

of the mine and having the piston rods communicate power to a pump down at the bottom of the working. This is the same plan that is followed in ordinary pumps from deep wells. The pump rod goes down to within a short distance of the water and then the water is forced up. A valve is placed at the outlet of the pump which, at the end of the stroke, closes and prevents the water in the discharge pipe from running back. At each successive stroke the column of water is thus raised until finally it reaches the surface.

#### Setting Water Motors.

From F. P., Washington, N J .- I would like to get some information on water motors-that is, how they should be act, how the main should be tapped, what size of pipes to use, &c.

Answer. - As the power of a water motor depends entirely upon the hydrostatic head or pressure at the motor, it should in all cases be set at as low a point as possible without interfering with the proper drainage of the tail water. Where water for power from a water works is used by measurement, its quantity is specified without regard to pressure, and as pressure is the exponent of hydraulic power in the terms of its amount in pounds, or its static head in feet, then every foot of head gained by the setting of the motor is power saved. Where water is delivered from underground mains into cellars the stated pressure is measured at that level. Any position of a motor above that level loses one pound pressure for every 2.3 feet that it is set above and gains in proportion for any distance below; so that as a rule it is better to transmit the power of a motor by belt or band from the lowest possible point for proper drainage than to set the motor on the main or upper floors, as is too often done with disappointing effect as to the amount of power and its cost. The size of the service pipe and its length from the main to the motor are most important factors of economy. The larger and shorter pipe lessens the running friction. The length of the pipe after the location of the motor is arranged is a fixed exponent of its diameter for a reasonable loss of friction head for the required quantity of water for a given power. In general terms, the rule is that friction is in proportion to the length of the pipe for stated velocities, and nearly as the square of the proportional difference in velocity; as, for instance, a pipe 200 feet long has twice the friction of a pipe 100 feet in length with equal velocities, while in the same pipes the friction at twice any stated velocity will be four times the friction at the stated velocity, with a slight coefficient of decrease in friction with increasing velocity. The size of a service pipe for any required power cannot be simply stated, but must be considered under the general conception of the rules for friction and volume of flow under a stated head or pressure for the required power.

In this view it may be said that the largest possible size gives the greatest economy in power. In order to get at a reasonable size for the service pipe for any motor, under all of the conditions of volume, pressure and friction, the power required and the pressure or head ascertained must be the starting points upon which the process of computation may be made, as follows:

One cubic foot of water per minute falling 1 foot through space or projected through a nozzle under 1 foot head, or 0.433 pounds pressure per square inch, upon a motor of the best form at 85 per cent. efficiency is equal to 0.0016098 of a horse-power, and 0.0016098 multiplied by the pressure head in feet will give the value of 1 cubic foot of water in horse power under the stated head. For example, 43 pounds pressure or 100 feet head × 0.0016098 = 0.16098 horse-power per

cubic foot per minute.

Now, if the motor is required to yield

a  $\frac{1}{2}$  horse-power, then  $\frac{0.5}{0.16098} = 3.105$ 

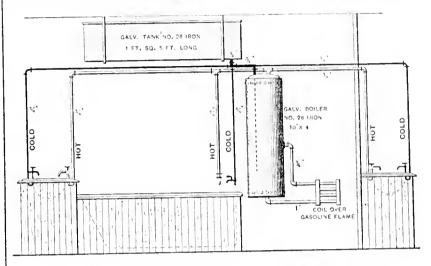
cubic feet per minute must be the flow through the pipe. Limiting the loss of head by friction at 6 feet, or 2 62 pounds pressure, we find in the published tables on the friction of water in pipes that a 11-inch pipe meets all the conditions, and for 1 horse-power a 11-inch pipe, and for 1 horse power a 2 inch pipe, 3 inch for 2 horse-power, and so on. These being iron pipe sizes are the nearest to the exact figures for area and for any length of 100 feet and less. For any material increase in length, or if there are a number of elbows in the line, the next size larger pipe should be used for each of the powers, as above stated. The main should be tapped as near the size of the service pipe as the rules of a water company will allow. Any constriction at the main gives less value in power for the quantity of water that is paid

#### Heating Water for Bathroom.

From F. J. L., Lawton, Mich.—Having taken your valuable paper for a number of years and gleaned from its pages considerable information, I desire to ask for more light on a subject with which I am very little acquainted. I send herewith a sketch, Fig. 1, of the system I propose to use for heating water. I have a bathroom about 8 feet square, but have no available means for heating water. Thinking that the plan which I have mapped out might work I thought before putting it in operation it would be better to have the opinion of The Metal Worker and its readers. I

intend to hang a No. 26 galvanized sheet iron tank, 1 foot deep, 1 foot wide and 5 feet long, near the ceiling for a supply tank, to be filled by a force pump from a cistern to supply a boiler 10 inches in diameter and 4 feet high. The top of the boiler will be about 3 inches below the bottom of the supply tank and the connection will be 4-inch lead pipe, the pipes to the faucets being 4-inch pipa. The double lines show the hot water pipes. The inlet to coil will be 1-inch lead pipe and the outlet 4-inch. There is a wash-

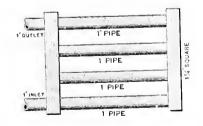
warrant its use in all cases. Although no dimensions are given, it is hardly likely that sufficient surface is exposed in the heating coil shown in Fig. 2 for supplying the quantity of hot water required. The water heating coils employed in gas ranges, as a rule, expose from 2 to 2½ square feet of surface to the flame, equivalent to 6 or 7 lineal feet of 1-inch pipe, and we think that pipe of the length mentioned



Heating Water for Bathroom -Fig. 1.-Showing Method Proposed.

bowl in bathroom as well as in the bedroom. The heating coli, shown in Fig. 2, is to be made with the four 1-inch brass pipes in the center, soldered to the two end 11-inch square copper pipes. These pipes are soldered on the inside and are so placed as to be beyond the reach of the flame, preventing all danger of melting. The inlet and outlet are of 1 inch copper pipe. I intend to heat the coil with a gasoline flame.

Note.—The system of piping shown is correct, but we think that \$\frac{8}{3}\$ inch pipe will hardly be satisfactory from the fact that water will run through it very slowly, due to the small pressure gained from a tank so slightly elevated



 $Fig.\ 2. - Proposed\ Gasoline\ Water\ Heater.$ 

above the fixtures. Better results can be obtained by the use of  $\frac{5}{5}$ -inch pipe. A 3-foot 12-inch boiler would likewise be more satisfactory in this case, we think, than the one of larger dimensions mentioned by our correspondent. If any difference is to be made in the sizes of the pipes connecting with the water heating coil, that from the bottom of the boiler should be the smaller of the two. Some authorities assert that sufficient advantage is gained by employing one size larger pips for the return from the heating coil to the boiler to

bent into a coil 6 or 7 inches in diameter and brought to a cone at the top would heat the water better than the device shown. It might also be advisable to make the tank for storing water of larger capacity, 3 feet or more wide being better adapted for the purpose. It is quite probable that some of the devices on the market for heating water quickly can be used in connection with the proposed tank and give good resuits without the use of the proposed boiler and heating coil. They are made to heat the water as fast as it runs through them, some being made to use gas and others to use gasoline as a fuel. No quantity of hot water is stored by these devices, but as they heat so quickly no inconvenience is had from delay.

## Comparative Cost of Fuels.

From Pennsylvania Gas Furnace Company, Butfalo, N. Y.—If "S. D.," London, Ont.. who asked for information in The Metal Worker of July 21. will write us we will be glad to give him any information on the subject he wants. Gas at \$1 per thousand in a coal furnace is out of the question. At 25 cents per thousand it compares favorably with coal in same furnace. To burn gas successfully and economically it must be a gas furnace.

The Bank of England celebrated its two hundredth anniversary on July 27. The charter of incorporation was granted in 1694 by William and Mary.

The Southern Railway has set aside a separate fund for the promotion of small industries along the several lines embraced in the new system.

## Progress in Galvanizing.

Progress in the ait of galvanizing, or coating iron and steel sheets with zinc, or spelter as it is commercially known, has traveled by easy stages. Some additional conveniences have been added to galvanizing shops and various minor economics have been introduced during the past 50 years, but otherwise the methods employed are changed very little. An impetus has, however, been recently given to progress in this line, and the merits and demerits of the best known innovation are receiving considerable discussion among those engaged in the industry.

The attention of galvanizers of iron and steel sheets in the United States has been drawn with a great deal of interest during the past two years to an improvement in their art known as the Bayliss machine, so named after its inventor, who, in the interests of a company of Wolverhampton, England, controllers of the invention, has been quietly introducing it to the American trade during the time mentioned. The machine was also on exhibition during the World's Fair, in the British section, but has otherwise received but little public notice, and singularly enough had no competitors at the exposition. It is now the subject of much consideration. Several manufacturers have put the machine to a practical test, and in several instances it is known to have performed its work in the manner promised, and has been found of greater capacity than the old dipping process. One of these machines is now being placed in the works of the oldest galvanizing concern in this country.

There is but one basis of comparison upon which it can be judged, and that is with results obtained by the old hand dipped process. In this comparison it is claimed for the Bayliss machine that there is freedom from the rough edge of adhering zinc found on sheets dipped by the old process, unless they are afterward treated to remedy that defect (which is a source of expense). In addition to this, it is claimed that the total quantity of spelter used to coat a sheet is much less than in the old method, yet the coating is more perfect, being more evenly distributed and equally lasting. Other improvements will be noticed in the description of the machine which follows.

#### General Description.

To properly describe the method of operating under this process a ground plan of a galvanizing shop suitable for two pots is shown in Fig. 1. After leaving the mechanical pickler sheets are stocked in various vats containing water which washes the remaining acid from their surface and are passed as required to the vats situated next to the metal pots, where the Bayliss improvement commences. The course of the sheets is clearly explained in the drawing, but for details reference is made to Figs. 2 and 3, representing respectively the plan and elevation of the Bayliss machine. The postions of men and boys employed are designated in Fig. 1 by asterlsks and will be referred to later.

When the sheets of iron or steel after passing through the pickling and washing process are taken from the vat nearest to the metal pot, they are passed through rollers A, Fig. 2, which are held closely together, and immediately enter the pot of molten metal with which thay are to be coated, being guided by arch B, made of light bariron, and passed

through flux rolls C Sal ammoniac is the principal ingredient of the flux, which is allowed to partly cover the Through these rolls the sheets rolls. are forced down into the metal and are made to follow the curve of cradle D, which is submerged in the pot. When the sheets pass upward from the pot through a layer of burnt molding sand or coke dust which lies on the surface of the metal they are caught between pegged rolls E, which impart to the sheets an impression that causes an even spangle by subsequent action of cold air. Following the guide F, they fall upon link belt conveyer G. In the intervening space between the metal pot and straightening machine a boy stands whose duty it is to sweep away the particles of dust remaining on the sheets and guide them into rolls at the point II. The force of these rolls passes the sheets between brushes I and on through straightening rolls J. These rolls will level any sheets that have not been badly buckled in rolling and pass them along to the conveyer, by which means they may be carried an indefinite distance, the usual distance being about 100 feet. At the end of the conveyer two pots, single turn, as shown by their positions in Fig. 1, would be 15, including superintendent or forcman. This is in comparison with at least 20 required in the old process for a much smaller daily output and more extravagant use of metal.

#### Quantity of Coating.

The quantity of metal used to galvanize a sheet of iron under the old process of working has been reduced by minor improvements to about 21 ounces per square foot of surface, but a great deal of this metal (spelter) adheres to the two lower edges of the sheets, which are taken from the pot diagonally by means of a rope and pulley. In the roller pot process the quantity of spelter required has been reduced to 2 ounces per square foot. At the same time, experts claim that the quality of the sheets is equally as good as those made by the old process, for the reason that all the metal is on the surface of the sheets evenly distributed and there are no lumps or rough edges. Tais is a point in favor of the improved process which both manufacturers and consumers will appreciate. The manufacturer will be

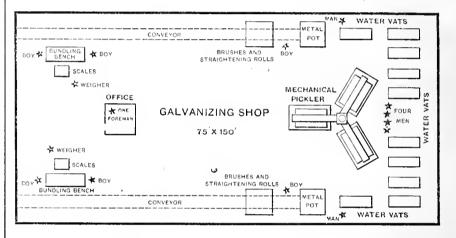


Fig. 1.-Ground Plan of Galvanizing Shop.

the sheets are taken off, inspected, bundled, weighed and branded and are ready for shipment.

An adjunct to this arrangement is the blower K suggested, but not always used excepting when a short conveyer makes it necessary for cooling the sheets. Ordinarily the sheets are sufficiently cooled without its use after they have traveled 100 feet at slow speed.

From the foregoing explanation it will be noticed that a great saving is effected by this process. The sheets are passed to the metal pot direct from the water vat, and the use of a drying oven is dispensed with and less manual labor is employed than in the old dipping process.

#### Labor Saving Features.

There are no improvements in machinery and appliances which command as much attention nowadays as those which tend to lessen the amount of labor required to perform work in a satisfactory manner. In this respect the Bayliss machine makes considerable saving. In the old method none but strong, healthy men can be employed, as it is necessary for them to stand over the metal pot in close proximity to the fumes of burning coke to perform their work. In the new process the labor is not so arduous and fewer men are required. The number of men and boys required to operate a shop containing glad to avail himself of the economy of metal and the consumer will find it easier to work sheets with smooth, even edges. The best results obtained in the use of the new process in Great Britain have already been equaled in this country, but it requires the very best of management and military precision in the actions of the men to produce them. In Great Britain it is customery to use a pair of cold chilled rolls about 18 inches diameter, run in ordinary housings in front of the metal pot. These rolls close up the pores of the sheets and effect a saving in the quantity of metal used. As competition becomes keener American manufacturers may resort to the same expedient. In this method of working results obtained are as follows:

To illustrate the difference effected by the use of cold rolls the result of a trial is here recorded:

#### Without Cold Rolls.

THOUSE COME 2100	•
34 sheets No. 26, 30 x 96 inches.	Pounds
Galvanized weight	
Black weight, not pickled	541

Gain..... 69

#### With Cold Rolls.

4 sheets <b>N</b> o. 26, 30 x 96 inches.	_	
Galvanized weight Black weight, not pickled		 inds 619 554
Gain		-

N B.-Loss in pickling is also added to spelter consumed

In galvanizing 34 sheets there was a gain of 4 pounds in favor of the use of cold rolls. The test was made without any screw pressure on the cold rolls. The only pressure was the weight of the top roll. In this instance the coat-

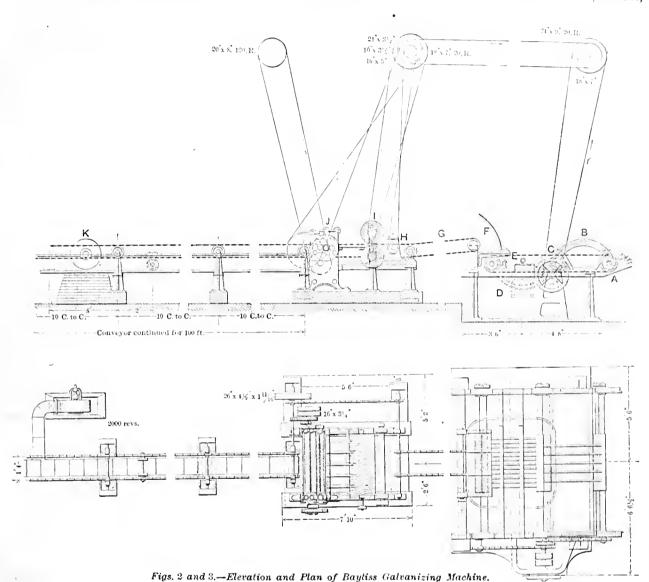
will tend to show the care with which galvanized price-lists are compiled.

Another matter which needs careful watching is the waste in pickling. In England muriatic acid is used almost exclusively. Americans use the weaker sulphuric acid, so results cannot be fairly compared, but the loss in pickling would probably be very nearly the same. Following are some results, same basis as above table, actual weights:

evenly distributed will produce a sheet of first-class quality.

Such are the facts, carefully gathered, in regard to this important improvement in the art of galvanizing.

The Paris correspondent of the Lon don Economist writes that the Customs Committee of the French Chamber have under examination a demand from owners of lead mines in France for a duty of 50 francs (\$10) per ton on lead, which is now on the free list. The production of lead in France is under 10,000 tons,



ing was remarkably light and shows what can be done with this process, but it is to be hoped that American manufacturers will not attempt to attain it.

Those engaged in the manufacture of galvanized sheets and those who are seeking information regarding it will be interested in the following figures showing actual results obtained by a well known English concern who have a high reputation for the quality of their goods.

Iron and Spelter Required to Make 2000 Pounds of Galvanized Sheets.

Weight of black	No. 20.	No. 24.	No. 26.	No. 28.
sheets	1,875	1,825	1,768	1,725
by zinc eoating	125	175	232	275
Total nounds	2.000	2.000	2.000	2.000

The proportionate increase in weight of metal required to coat various gauges

Pickled	1,825	1,763	1,688	1,638
Total gain	175	237	312	362
Total pounds	2.000	2.000	2,000	2,000

Materials Used for 2,000 Pounds Galvanized Sheets.

	No. 20.	No. 24.	No. 26,	No. 27.
	ъ.	10-	Tb.	m.
Zinc	175	237	312	362
Sal ammoniac	11	13	16	19
Muriatic acid	350	400	450	500
Coke, 50 pounds	to the	ton of s	sheets.	

The result of a test on No. 26, 30 x 96 inches, was as follows:

	Pounds
	persbeet.
Weight of black	14.125
After pickling	13.5
After galvanizing	
Zinc coating	21/2

It will be seen that to coat 20 square feet of surface  $2\frac{1}{2}$  pounds of spelter were consumed, an average of 2 ounces per square foot, and this quantity of metal

and the consumption averages \$90,000 tons yearly. The mine owners argue, however, that without the duty French mines must be closed and France be at the mercy of the foreigner for all the lead she requires.

Chief Constructor Hichborn, of the Navy Department, is carefully considering a proposal for sheathing the new ironclads, in order to prevent the fouling of their bottoms.

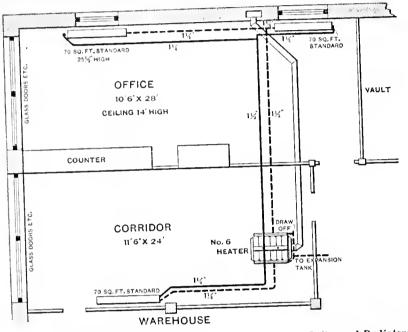
The directors of the Street Railroad Company of Montreal and the post-master of that city have srranged for the inauguration of a system of mail carriage by electric cars from one part of the city to the other. Special mail cars are to be built, each to contain a staff of clerks, who will sort the mail on the way to and from the various city suburbs.

# STEAM AND HOT WATER.

### Heating on Boiler Level.

The small and interesting hot water heating plant, shown in the accompanying illustrations, is in operation in the office of M. Drane & Son, Corsicana, Texas. A Royal hot water heater is used, the plant being designed by W.

1½ inch flow main leading from the heater to a point where it branches into two 1½-inch flow mains, running to and connecting with each of the radiators. The pipe in each case has a fall from the top of the heater to the radiators, the returns likewise descending toward the heater to a point where they rise and connect with it. Fig. 2 presents



Heating on Bailer Level .- Fig. 1.-Plan Showing Location of Bailer and Radiators.

M. Mackay, at the New York office of Hart & Crouse, Utica, N. Y. The office occupies the southwest corner of a large warehouse building, the easterly exposure of which is mainly of glass. The plant was designed to supply a temperature of 75° with the outside temperature at 15° above zero. There being no basement the boiler was set in the corridor on the same level as the three radiators to which it is connected,

an elevation of the radiators and piping in the office, also showing the method of connecting the flow main, in which an elbow and quick closing angle valve were employed, instead of making direct connection with radiator and using a gate valve. The returns from the radiators travel above the floor to a point where they run over to the heater, dropping down and connecting, as shown. Fig. 3 shows an elevation o

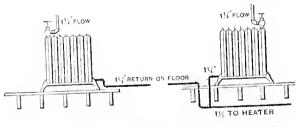


Fig. 2.—Showing Office Radiators and Their Connections.

the flow pipes being below the ceiling and the returns under the floor of the office. Fig. 1 shows a plan of the office, indicating the location of the boiler and radiators and giving the sizes of the pipes used. A Standard radiator containing 70 square feet of surface is placed in the corridor and is supplied by a 1½ inch pipe from the boiler, the flow pipe connection to the radiator being made on the top. Two Standard radiators, with 70 square feet of radiating surface, are located in front of the windows in the office proper, a

the expansion tank with the flow pipe branches. A ½-inch air pipe is taken from the top of the flow main, where it branches and is carried into the expansion tank, providing for the escape of air that may accumulate in the system. A 1-inch expansion pipe leads from the tank and is connected at the bottom of the heater at the back, as is shown in Fig. 1. The plant was put in operation last fall and after testing it during the winter Mesers. Drane & Son have written expressing entire satisfaction with its operation.

#### How Shall Radiators be Vented?

From A. P., Pennsylvania. — Will some of the practical readers give their experience with hot water systems hav-

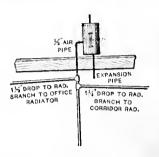
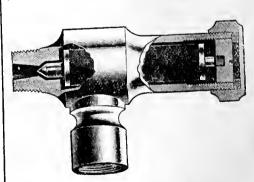


Fig. 3.—Showing Expansion Tank and Cannections.

ing air pipes from all radiators run to or above the expansion tank? Is it advisable to run air pipes from direct radiators when the ordinary air valve can be used?

# The Monash Automatic Steam Air Valve.

The Monash automatic steam air valve, herewith illustrated, is claimed to possess several particular advantages. The first feature to which attention is directed is the metal conical valve seat with a guide which insures positive action, the maker claiming that this is particularly durable. There is also an improvement in the mechanical construction of its adjusting screw. As will be noticed, it is separate and detached from the vulcanite and the adjustment in the valve can be made with-



The Manash Automatic Steam Air Valve

out turning the vulcanite on the valve seat, so that once the valve has made its seat it will not be disturbed. This valve is intended for use with drip pipe connections and also with drip cups. The valves are manufactured and sold by the Van Auken Special Company, 201-207 South Canai street, Chicago, for which Charles P. Monash is manager.

#### HEATING NOTES.

THE LAST TWO ISSUES of the familiar scarlet colored pamphlets descriptive of the Richmond heaters for stesm and hot water are published in the interests of Frank I. Lesard & Co., Manchester, N. H., and Henry W. Peabody & Co., export agents, New York, London and Australia.

THE SMITH & WINCHESTER COM-PANY, Boston, state that the Winchester steam and hot water boilers are being well received by the New England heating trade. The ease of setting is a strong argument in their favor. A hot water boiler of this type has been used to heat the residence of Charles Zerra at Melrose Highlands.

THE MAGRE FURNACE COMPANY, Boston, placed the first sample of their Magee hot water boiler on the floor of their show room last week. The apparatus has been brought out to meet the demand for a more powerful hot water heater, adapted for use in cases where their combination hot water and hot air constructions prove inadequate. The new heater possesses some novel constructive features, which will be fully described in a circular now in course of preparation.

THE WALKER & PRATT MFG. COM-PANY, Boston, report a good demand for the Crawford steam and hot water boilers. They also refer to the fact that for heavy duty their Commonwealth steam and hot water heating apparatus is giving exceptional satisfaction.

THE UNITED STATES HEATER COM-PANY have arranged with Janes & Kirtland for room to display their line of hot water and steam heaters, and desk room for their New York representative, J. L. Saunders. The trade will bear in mind, therefore, that hereafter samples may be seen at 110 Beekman street, New York, and communications sent to the United States Heater Company, at that address, will receive attention.

M. Mahony, Troy, N. Y., continues the publication of monthly calendar sheets, which are of service for office use, and at the same time keep the receiver in mind of the Mahony boilers for steam and hot water heating. The decoration of the latest card, which is for August, is particularly refreshing in this westher, being a sea scene with a bathing costumed young woman at the side.

THE FIRM OF WRIGHT & OLSEN have just started in business as the successors of Taylor Goodrich, 27 New Montgomery atreet, San Francisco, Csl., who has for msny years been identified with the stove and heating appliance trade. The new firm consists of W. H. Wright and O. F. Olsen. Mr. Wright, the senior partner, recently went to San Francisco from the East, while Mr. Olsen has been connected with Taylor Goodrich for over seven years. In the stock carried by the new firm are the Magee ranges, stoves and furnaces. Wright & Olsen are now prepared to contract for ventilating and heating residences, schools, churches and public buildings by hot air, steam or hot water.

"We have the pleasure of serding one of our vest pocket memorandum books which served as a souvenir at the Master Plumbers' Convention," is what the Detroit Heating & Lighting Company of Detroit say in a letter accompanying a memorandum book, bound in calf with celluloid inset, bearing an il-

lustration of the Bolton steam and hot water heating apparatus. On the back cover is shown a view of the Ploneer combination gas machine, while inside the front cover is a calendar for the year, the pages forming the body of the book being blank for memorandum purposes.

"WHAT'S YOUR PLEASURE?" SAY the American Boiler Company, in a very neat little circular just out. Other inneat little circular just out. terrogatories follow, bearing upon the heating line, which are duly answered by referring to the 182 different types of steam and hot water heaters which they manufacture, also the fact that they sell radiators, pipe, fittings and everything else needed to complete a job, backing it all up with the clincher that they have had long experience and never fail to please. Their Chicago office is at 84 Lake street, and New York office at 94 Centre street. Under date of August 1 the company issue a circular letter calling the attention of the trade to infringements on their Spence boiler, and stating that they own and control all the original patents covering the most essential features in the internal construction of the genuine Spence boiler pertaining to the water post which makes each section independent of the others.

The Niagara Radiator Company of Buffalo, N. Y., have opened a branch house at 93 Lake street, Chicago. It is under the management of T. J. Haywood, who was connected for five years with the American Radiator Company and their predecessors. The location of the Chicago branch is in the beart of the heating trade district in the Tremont House Block. It is the intention of the company at an early day to carry a stock of their radiators in Chicago, in order to promptly supply the trade. They have issued an exceedingly handsome circular illustrating and describing their new three-column radiator.

THE BOYNTON FURNACE COMPANY. 195 and 197 Lake street, Chicago, and 207 and 209 Water street, New York, have issued a Western edition of their catalogue of hot water and steam heaters. In it they illustrate and describe a variety of constructions suitable for any character of service. The largest hot water heater shown is their No. 5, The largest return flue heater, which has two feed doors, a grate surface 42 x 66 inches, a fire surface of 340 square feet, and a capacity for 5500 square feet of direct Other water heaters shown radiation. are the sectional return flue bard coal heater, the sectional return flue stcam heater, the soft coal sectional cast iron return flue hot water heater, the Niagara water heater and the Nisgara steam heater. Each of these is illustrated by perspective and sectional views and its special adaptabilities and advantages are fully set forth. Their sizes, capacities and prices are grouped in tabular form on a separate page, thus enabling comparisons to be easily made. A short treatise on hot water heating is given, and directions follow to fitters for setting the Boynton hesters. Eighteen pages are devoted to testimonials and references, covering covering customers in 35 States and Territories.

John Young, formerly with the Herendeen Mfg. Company, Geneva, N. Y., is now connected with the W. H. Page Boiler Company, Norwich, Conn., where he will have full charge of the business affairs of the company.

W. F. WESSEL, Peekskill, N. Y., was a vistor at the New York house of the

Gurney Heater Mfg. Company this week-He has set a number of the Gurney hot water heaters in his vicinity and will set more this fall.

J. B. BERNHARD, Jr., who has been traveling in the West for Hart & Crouse, will now remain at the Chicago salesroom, 79 Lake street.

The Bantam Game Oll Heater.

The accompanying illustration shows a new oil heater that is being put on the market by Sam S. Utter, New York, intended for use as a bathroom heater or for heating other small rooms. It can also be used as a lamp by unlocking and lifting off the heating section and substituting a glass chimney. The lamp section is handsomely designed and made of nickel plated brass and is con-



The Bantam Game Oil Heater.

structed on the central draft principle, giving a circular fiame of good heating and lighting power. The air enters the heating section through the center of the burner and close to the outer surface of the fiame, a circular plate being used to accomplish this result. This plate gets very hot, and the air which enters the perforations of the body support strike it first. The body or heating section is made of planished sheet iron and ornamentally perforated at the top and bottom, the bottom perforations being covered with mics. A decorative cover rests on the top of the stove, and when it is lighted it presents a cheerful appearance and gives a strong heat.

THE LOWELL HEATING AND PLUMB-ING COMPANY, which recently opened a place of business at 43 East Pine street, Lowell, Mass., have been obliged to seek larger quarters. A large store has been leased, numbering from 828 to 836 Middlesex street. D. W. Mullin, formerly with D. H. Wilson & Co., is manager. The firm makes a specialty of remodeling old plumbing and heating plants.

# PLUMBING and GAS FITTING.

Monmouth County, N. J., Plumbers.

State Vice-President John Hickman of Paterson, N. J., is sending the following letter to the plumbers of Mon-

mouth County, N. J.

"You are cordially invited to be present at a meeting of the master plumbers of Monmouth County, on August 10, at Monmouth Trust Company Building, at Asbury Park, at 8 o'clock p.m., for the purpose of forming an organization to be known as the Master Plumbers' Association of Monmouth County, N. J. There will be a number of prominent master plumbers present to speak to you, including John Mitchell, president of the National Association of Master Plumbers of the United States, and a pleasant and fraternal time is promised to all. The objects of organization, which is the principal idea of this meeting, are many and obvious. It is with the desire of uplifting our trade in the eyes of the public, bringing it on the same social plane as the physician, and giving it that recognizance which as a profession it is entitled to. It is also the means of bringing our craft closer together in a fraternal spirit. Master plumbers' associations becomes and deviated in ternal spirit. Master plumbers' associations have organized and flourished in all cities of the United States to-day, and why should we be behind hand? Sanitary laws are being passed by our trade everywhere, instilling the public with an idea of better plumbing, and the plumbers of Monmouth County should certainly derive the same benefits from the formation of an organizafits from the formation of an organization that our trade is receiving through-out our grand country."

The committee who will aid in the work are: T. D. Bazley, Long Branch; B. Crowell, Asbury Park; Wm. McMa-

hon, Red Bank.

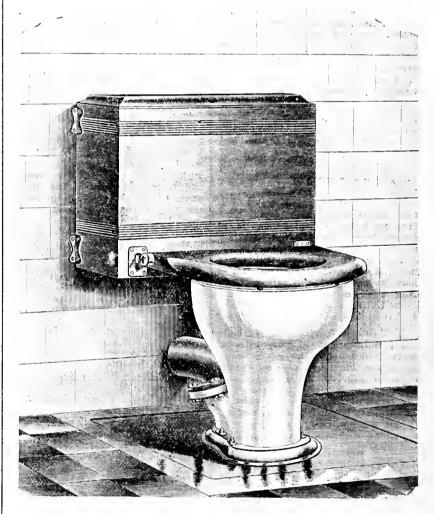
In the work of organizing the State, Mr. Hickman is ably assisted by Alexander Don of Newark, N. J. They will work together to organize an association in Union County at an early date, after which they will endeavor to effect an organization in Jersey City, Trenton and Camden, and a meeting to form a State Association is being considered with the probability that it will be held some time in September.

#### The Puritan Wash Down Closet.

The accompanying Illustration shows the Puritan wash down closet, just put on the market by the Dalton-Ingersoll Company, Fort Hill Square, Boston, Mass. As will be seen by the engraving the flush tank sets directly on, and not high above, the hopper, as has been the custom heretofore. The closet has the custom heretofore. The closet has a large standing pool of water, 3 inch depth of seal and a full 4 inch outlet, and is adapted to be placed almost anywhere, the top of the tank being Lut 2 feet 6 inches from the filor and the front of the closet 2 feet 13 inches from the face of the wall. The complete apparatus, it is stated, occupies no more space than a closet of the ordinary con-struction, besides saving the wall surface required when a flush tank of the common type is employed. It has a larger outlet than is found in siphon closets; fewer bends; is, it is said, not liable to stoppage and is clean, all the flushing water passing through the bowl. From the slight elevation of the tank the operation of flushing is almost noiseless. It is also stated to be inexpensive in setting as the flushing and supply pipes are dispensed with. The makers furthermore guarantee the closet

Newark Plumbers' Field Day.

July 27 found many of the plumbing shops at Newark, N. J, closed in honor of the first annual excursion and field day of the Master Plumbers' Association of Newark, N. J., to Pleasure Bay. About 100 men formed in line before Association Hall, with Grand Marshal W. Zeliff at their head, and to music by the Voss Cornet Band, marched to the station, journeyed to New York and by



Puritan Wash Down Closet.

for a term of three years. It is made in three styles, the cheaper grade being adapted for use in places where the commonest fixtures have previously been employed and can be operated by the seat, as shown, or by leverage. The back part of the seat is slightly raised and connected with the flushing valve. On being used the seat drops on the closet for support and on being released the valve is tripped and the closet is flushed.

J. SPENCER of the firm of Adams & Spencer, plumbers, tinners and steam and hot water fitters, was one of the visitors among the trade in the vicinity of Beekman and Water streets, New York, this week.

steamer from there to Pleasure Bay. At New York, State Vice President John Hickman headed the Paterson delegation, composed of ex Alderman J. Kearney, I. H. Voorhis, James H. White, Frank Mead, James Gillespie, Robert Beaumont, Adam Fritz, D. J. Roegiers, T. C. Cooper, Robert Davidson, U. C. Lendrum, Charles Walz, Adolph Weber and Peter Spear. The face of the gental secretary, J. T. McNabb was missing to the regret of all who sympathized with him in the recent lose of his vife. Lavi McRide. recent loss of his wife. Lavi McBride was also detained by sickness in his family, and in consequence a feature of the amusement was withheld for another opportunity.

Plumbing Inspector L. Balbach and

Francis Lang represented Orange, and Plumbing Inspectors W. H. Grier and J. B. Sullivan of Newark were also present. President Berla was accompanied by Charlea Bond, Joseph A. Smith, William Jacobi, E. J. Leonard and Ira Budd, the officers of the asso ciation. The Committee of Arrangements were William Jacobi, F. J. Sturn, Ira Budd and George Bauman. handsome souvenir was distribued, giving the names and half tone portraits of the officers and the committee. A brief history of the organization was given, with some humorous matter and advertisements of the trade. Dubois & Darragh were represented by ex-Sccre-tary Alexander Don and C. P. Vanderveer; Chemical Pottery Works, Brooklen, N. Y., by Thomas Milford; Henry McShane Mfg. Company by J. T. Myer. The Newark houses represented were V. E. Egbert & Co., Essex Lead Works, Passmore & Meeker, Bannister & Pollard, Macknett & Doremus, Roe & Conover and Hunt Brothers, while New York sent representatives from Jenkins Bros., Boynton Furnace Company, Thutcher Furnace Company, Richardson & Boynton Company, Fred Adee & Co. and C. F. Gessert.

After a pleasant sail down the bay a landing was made, and headed by the a randing was made, and headed by the band the plumbers marched to the Portau-Peck Hotel at Pleasure Bay, where mine host J. H. Wardell made firm friends of all his guests by serving a most delicous clambake and fish dinner. Two games of ball were played, the contestants being the Paterson and Newark Plumbers, Paterson carrying off the honors in both games, the score in the morning game standing 7 to 6, and in the afternoon 20 to 6. The The entertainment of the day included humorous remarks by marb'e dealer Hunt, and songs by L J. Parks.

At 6.30 o'clock the plumbers and their guesta left Branchport on a special train for home, the affair being voted a

general aucceas.

#### Water Main Tapping Machine.

The illustrations presented herewith show a machine for tapping water mains made by the Burritt Mfg. Company, Havemeyer Building, 26 Cortlandt street, New York, whose works are at Bound Brook, N. J. Fig. 1 shows the machine as attached to the main for making a single branch. sleeve is connected around the main and made tight by means of lead packing well calked. To this sleeve is | from the flange on the gate valve and

view of the machine as connected with the main, showing the drill point which drills a hole in the main. Fastwhich drills a hole in the main.

sired, after which the water may turned on or shut off by means of the valve at pleasure. Fig. 3 shows the

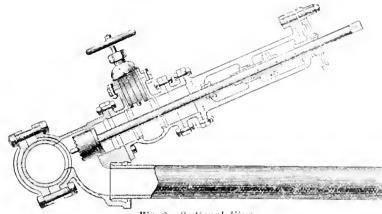


Fig. 2.—Sectional View.

ened to the drill shaft is a cutter which is made any size from 2 up to 48 inches in diameter, according to the size of the hole that is desired in the main. With the machine a branch can be taken from a main the same size as the main. This drill point and cutter bar are operated by means of a ratchet After the outer cutter has made a clean hole in the main the piece that

branch connection after the gate valve has been closed and the cutting ma-

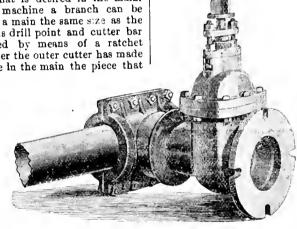


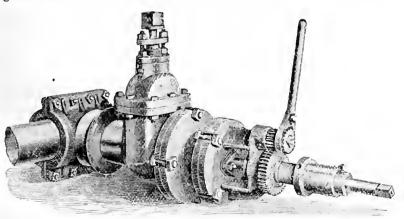
Fig. 3.-Showing Valve Closed with Machine Removed After Tapping.

is cut is drawn out with it beyond the chine removed. Fig. 2 shows a special gate valve, after which the valve is sleeve by which the branch main may



Fig. 4.—Showing Branch Complete without Gate Valve.

The cutter is now unbolted closed.



Water Main Tapping Machine. - Fig. 1. - Machine Attached to Main.

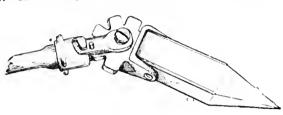
joined one of their roller wedge gate | valves, which has a flange face on one end to which the tapping machine is attached to the gate valve and the work connected. Fig. 2 shows a sectional of laying the pipes continued as de-

disconnected with the loss of but little water. The branch main may now be attached to the gate valve and the work he connected to the main previous to the main being tapped, and shows how a branch may be laid without leaving a gate valve in the branch connection, which is a very substantial saving in the cost of a water works plant. After having made the sleeve water tight and the branch main secure throughout its length, the wedge valve is connected to the flange in the usual manner and the main tapped. The cutter is then withdrawn and the gate valve closed, when the machine is disconnected from the gate valve, as shown in Fig. 3. sleeve is then bolted to the valve which has within it an expansiou cylinder around which is a rubber gasket. The gate valve is then opened and this is inserted in the recess in the upper opening of the branch sleeve and expanded, making the connection perfectly water The gate valve is now removed from this branch and an iron plug put in outside of the gasket and the lead packing calked secure to make a permanent stop. Fig. 4 shows the branch complete without the use of a gate

### Adjustable Soldering Iron.

The accompanying cut illustrates the adjustable soldering from made by H. Beutelspacher, Bridgeport, Conn. The special feature of the iron is that it may be turned and held at any angle. To hold it in position the loose collar is pushed forward until it engages the notches at the top of the bit. The collar is then partly rotated until the hook catches over the pin shown at the side of the handle. In this way the bit is

of oblong shape, is bound in pebbled cloth, has flexible covers, contains 73 pages and is printed on a fine grade of paper. The alphabetical index in the beginning indicates the extensive variety of articles included, which is followed by a telegraphic code, and then comes the catalogue proper with its muititude of fine engravings. The articles embrace a full line of brass goods for water and gas companies, the first noted being bibba, then stops, cocks, filters, couplings, hose pipe, nozzles,



Adjustable Soldering Iron.

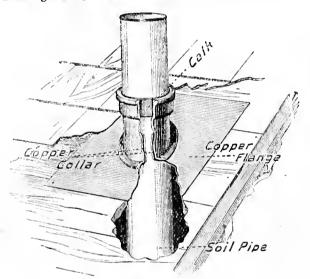
firmly held in position for use. When a new position is desired the soldering iron is readily readjusted.

### The Hub Roof Flange.

Through the courtesy of King & Goddard, 66 Pearl street, Boston, Mass., we are able to present an engraving of the Hub roof flange, manufactured by F. R. Nies & Co., Lynn, Mass. The device is a hub, sleeve and flange combined, enabling the plumber to make a perfectly tight joint where the soil or ventilating pipe runs through the roof. The hub is a casting resting on a cop-

hose clamps, valves, compression cocks, hydrant work, service cocks, meter eocks, brass fittings, pipe, cast iron fittings, malleable iron fittings, stocks and dies, cutters, &c.

FRANK A. WENDELL entertained the members of the Master Plumbers' Association of Salem, Mass., last Saturday. The party left the Willowa in two steam yachts and went out to Half Rock, where fishing was enjoyed. Baker's Island was the next point of interest, and here the party had a fish dinner. Two nines were then picked up from those present and a ball game passed away a few hours. Embarking again



The Hub Roof Flange.

per flange, adapting it for use under a shingle or slate roof, as shown, or for soldering fast to a roof of tin. The soil or ventilating pipe can be run up through the casting, calked with oakum in the usual manner and lead poured on top and calked, rendering it water tight. The hub is made in four different angles of 5, 15, 30 and 45° and 5 different sizes, 2, 3, 4, 5 and 6 inches.

### TRAPS AND VENTS.

THE CATALOGUE of water and gas works goods issued by Peck Brothers & Co., New Haven, Conn., is an extremely neat publication, in keeping with the other catalogues and circulars distributed by this well known firm of manufacturers. The pamphlet, which is

on one of the yachts a cruise was made to Gloucester, where everybody took a look at the old town. On the way home, when about 3 miles outside of Baker's, the party was overtaken by the storm. The little steamer was immediately headed for the fishing schooner "Minnchaha" of Swampscott, whose genial captain took all on board and furnished supper, after which he gave them possession of the ship. A lively time was enjoyed with songs and story telling until the storm had passed.

THE DALTON-INGERSOLL COMPANY, Fort Hill Square, Boston, Mass., are one of the progressive plumbing supply houses, and in addition to carrying everything required in their particular line, bring out from time to time specialties. They are now putting on the

market a wash down hopper closet with a low down tank, which, it is claimed, can be set with some saving in expense and give a perfect wash with ne back action.

CRAWFORD & Youne, Bosten, are about completing the plumbing work in Waverley Hall, a new students' dormitory at Cambridge. This contract includes 60 bathrooms and a swimming bath. The fixtures were supplied principally by W. B. Hubbard, manager of the Besten house of Peck Brothers & Co.

THE PLUMBING SYSTEM in the Flushing, L. I., High School Building is being examined with a view to having it put in a sanitary condition. It has been discovered that none of the water closets are "back alred."

The New LAW in Massachusetts regulating the plumbing business, which went into effect July 10. allows unregistered plumbers until September 1 to register and take out licenses. Under the old law only those plumbers not in the business previous to July 10, 1893, were required to register, but now all plumbers must be registered. Any unregistered plumber who does a job after September 1 is liable to a \$50 fine.

THIEVES have been successfully robbing some houses in New York by the old game of telling servants that they have been sent to make some plumbing repairs.

THE MANUFACTURE OF SLATE GOODS for plumbers' use is a branch of the business of the Monson, Maine, Slate Company of Boston. They are wel, equipped to furnish urinal stalls, sinks, wash trays, laundry tubs, lavatory slabsr flooring and wainsceting, made of thei fine grain unfading slate. They carry in stock a full line of standard goods, but orders are promptly filled for goods of dimensions to meet irregular requirements.

THE EXAMINATION OF PLUMBERS by Plumbing Inspector Tower of Springfield, Mass., will henceforth be conducted according to the law recently passed requiring a practical test of efficiency. The first examination under the new law was held last week.

MONTEITH, DEMPSEY & Honer is the title of a new plumbing house located at 151 Seventh atreet, Dubuque, Iowa.

WM. H. Long has engaged in the plumbing bustness for himself at his residence, 615 Seventh street, Huntingdon, Pa.

THE PLATT-BROOKS PLUMBING COM-PANY are among the new enterprises recently established at Little Rock, Ark., and have opened up business at 205 West Second street. The firm consists of E. C. Platt, who was for years in the plumbing business at Niles, Mich., and W. Burt Brooks, a wellknown plumber. The company will take contracts for plumbing, gas fitting and steam and hot water heating.

O. S. Kelsey died auddenly in Middletown, Coun., from rheumatism of the heart. Mr. Kelsey was in the plumbing and stove business in Hartford up to eight years ago, when he retired. Five years since he went to Middletown, where he entered the employ of Bailey & Stothart, plumbers, taking charge of their business.

An interesting case was recently tried at the Court of Special Sessions, involving an infringement of the New York plumbing laws, the ergineer of one of the large hotels being convicted

and fined \$25 for doing plumbing without a license. After his arrest he started a shop in the basement of the hotel and applied for a certificate of competency from the Board of Examiners, which was refused as he was unable to qualify. This case will have an important bearing on many of the large hotels, apartment houses and other buildings employing janitors and engineers, who in the course of the year do considerable plumbing work, especially in the way of repairs and extensions of existing systems.

THE SMITH & WINCHESTER COMPANY of Boston, in addition to two large five-story buildings in the city, have a large warchouse at South Boston, to which the railroad runs a siding. Here is carried their heavy stock of soil pipe, larger sizes of wrought iron pipe and fittings and all the appurtenances of the Dandy windmill, with which they do a large trade in New England. Their showroom presents a great variety of

They recently supplied to Alfred Provost all the materials required for plumbing the City Orphan Asylum, at Sa'em, Mass., their special hopper and trap closeta being used, the materials alone amounting to nearly \$5,000.

DAVID M. CONNELL has opened a plumbing establishment at 5 Spring street, Fall River, Mass.

The Crane Company of Chicago have just issued a ten-page catalogue of cast iron drainage fittings. With the introduction of the wrought iron pipe system of drainage came the necessity of a line of fittings especially adapted to its requirements. To meet this demand the Crane Company have made patterns for a great variety of fittings shown in this catalogue, as follows: Elbows of 90°, 60°, 45°, 22½°, 11½° and 5½°, 90° and 45° long turn elbows, tees and reducing tees, three way and reducing three way elbows, Y branches of 90°, 60° and 45° and reducing Y branches, double Y branches, increases.

#### Enterprise Gas Radiators.

Two new gas radiators are shown in the accompanying illustrations, that are being manufactured by Luther & Lederhos, 30 Cliff street, New York. Fig. 1 shows a radiator with horizontal heat tubes, supported by columns resting on a nickel plated base. In the bottom of the base a planished copper reflector is placed, over which is suspended a burner of the illuminating character, which is lighted by a door at the center of the base. The column at one side is not open at the bottom, and partitions are placed in both columns so that the products of combustion leave the base and pass up one column to the partition, which deflects their course through the heating tubes back and forth until the top is reached, where they find exit through an opening adapted for a chimney connection when desired. This radiator is de-





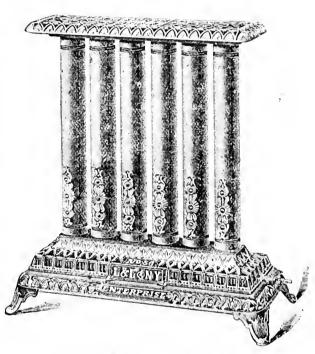


Fig. 2.-With Vertica! Heat Tubes.

### NEW GAS RADIATORS.

plumbing specialties in steel clad, enameled, roll rim and porcelain baths, besides a large and assorted line of water closets of the hopper, wash out and siphon jet character, as well as lava-tories of different styles and designs. An extensive line of nickel plated brass goods, such as are used in open work plumbing, are shown. These goods are displayed in cases against black velvet, presenting a very bandsome appearance. In cast iron fittings they carry a full line for stesm and hot water work, for all sizes of pipe up to 8 inches, and including an assortment of gate and globe valves, traps, pressure regulators, &c. One floor of the building is entirely devoted to pump repairs, the firm making a specialty of handling pumps of every character, from the popular New England copper pump and the well known cast iron pitcher pump toforce pumps and steam pumps for heavy duty. A feature of all the printed matter of this house is the use of the word "everything," the idea being to impress upon the trade the fact that they can furnish everything in the plumbing, steam, water and gas fitting lines, as well as earthenware, iron, lead, brasa and cast iron goods.

closet and reducing closet elbows, with one end flanged, 90° Y branches with auxiliary inleta, closet flanges, roof connections, cappings for air inlet pipes, S traps, half S traps, running trapa, &c. These fittings are made with a shoulder and are the same size inside diameter as the pipe. The pipe screws in up to the shoulder, making a continuous passage, leaving no pockets for the solid matter to lodge in, thus preventing the choking up of the pipe. The company state that when not otherwise ordered these fittings will be coated with heated asphaltum, excepting those for use in New York City, which will not be coated.

HILL & MOORE have opened a plumbing shop on the southeast corner of the square, Lima, Ohio.

P. L. Lyons & Co. of Montpelier are to open a plumbing shop in the Cushman Block, West Randolph, Vt.

J. A. CASLAKE, late of Dunsmore & Caslake, Stratford, Ont., has opened a tinsmithing, plumbing and steam and gas fitting establishment in the Odbert Block on Ontario street west, Stratford, Ont.

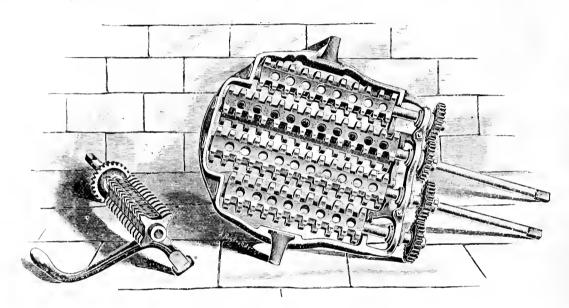
signed for a base heater, and in operation a strong radiant heat is given off near the floor and a good current of hot air rises through the ornamental top after having passed over the heating tubes.

Fig. 2 shows a radiator with vertical heating tubes running from the top to a base constructed with the same atyle of burner and planished copper re-flector. To facilitate the lighting of this radiator, a hood connected with the lighting door is drawn over the burner when the lightlng door is opened, then when the gas is turned on it is collected and all the burners light at one time. The columns connect into an ornamental top and are decorated with colored jewels in nickeled settings. The radiators are called the Enterprise, as is the line of gas ranges, hot plates and heaters made by the house. Both are made in three sizes, with four, five and six heating tubes, burning 25, 30 and 35 feet of gas per hour respectively, and said to have the capacity to heat rooms from 15 to 18 feet square. horizontal tube radiators are numbered 44, 46 and 48, the others being num. bered 52, 54 and 56.

## Economy Revolving Hollow Bar Grate.

The illustration presented herewith shows the construction and general features of the Economy revolving hollow bar grate, a new form of grate for which a patent has been applied for, and which is being introduced in the Economy furnaces and heaters made by the J. F. Pease Furnace Company, Syracuse, N. Y. The general features for which particular claims are made, is the large amount of air surface and the corresponding small amount of dead surface in the grate; the construction of the hollow bar so made as to make the liability of warping practically im-possible, and the fact that when the ashes are dumped into the pit there is an exceptionally small loss of fuel. Like the other Economy heater grates, the new one is suspended in the ash pit some distance below the bottom of the tire pot, so that a poker can be run over its entire face and ashes and clinkers removed. The bars, as will be seen by

Gas Flow Computer. It is a card some 10 inches square, mounted on a circular disk, outside of which an arc is fastened to the eard. The background of the eard reads, "Cubic Feet of Gas Per Hour;" the disk reads, "Diameter of Pipe in Inches," while the second small scale on the disk reads, "Pressure in Inches of Water" The arc reads, "Length of Pipe in Yards," and a smaller scale is labeled "Specific Gravity." The application of the computer is very simple, and is intended to show the number of cubic feet of gas per hour that would flow through pipes of certain diameters, certain lengths and under certain pressures. In using it it is merely necessary first to set the arc with the specific gravity of the par ticular gas under consideration oppo-site a fixed arrow. Next bring the pressure in inches of water opposite the leugth of pipes in yards, and then, reading across from the diameter of pipe in inches, the number of cubic feet of gas that will flow per hour will be seen direct. The diagram is worked out from The title of the appellant to this patent, and the utility of the invention it describes are not contested in this court. A glance at the claims of the patent is sufficient to show that unless they are restricted by the prior state of the art the appellees are infringers. It was not the mere form of the hinge described in the patent in suit that Selden & Griswold were seeking to claim. It was any hinge in a waffle iron which itself formed, or was provided with, one of the journals or pivots on which the pan was rotated. It was not a new hinge that they thought they had discovered or invented, but it was such an improvement in the construction of the waffle iron that the hinge could be placed in the same line with the axis of rotation of the pan, and at the same time perform the function of a journal for its rotation, while the handles attached to the pan opposite the hinge formed the other journal. It was the combination of the following essential elements that the patentees fairly described, claimed and sought to secure by their patent: A hinge to the pan located in the same plane with its axis of rotation, a hinge that was provided with a journal on which the pan might be turned; a handle



Economy Revolving Hollow Bar Grate.

referring to the smaller engraving at the left of the illustration, are each provided with four sets of prongs and revolve against one another so that any clinkers of ordinary size are caught and crushed. It is pointed out that in revolving, the bars cannot become so far separated as to permit the loss of fuel, as a moment's consideration will show that as the hollow bar revolves the aperture is much less with the four prongs to the grate than it would be with a triangular grate of the same diameter which has only three prongs. Because of this lesser opening the manufacturers point out that the waste of fuel is reduced. In the engraving the grate is shown with the bottom side presented to view, illustrating the bars and connections. The bars are perforated on all sides, and also lengthwise through the center, which construction, it is stated, prevents the liability of warping. Although each bar is honeycombcd, as shown, they are made with a proper regard to strength. If desired, the grate can be partly dumped without letting out the culire fire, in which lowered condition the larger clinker accumulations can be readily removed.

William Cox, Post Office Box 541, Stapleton, N. Y., has published a very interesting chart, which he calls Cox's Professor Pole's formula, and a number of testimonial letters from gas engineers apeak in the highest terms of its utility.

#### Wasle Iron Decision.

The Griswold Mfg. Company, Erie, Pa., are distributing as circulars extracts from a recent decision in their favor in a suit with John B. Harker & Co. respecting the construction of waffe irons. The decision was delivered in the United States Court of Appeals, Eighth Circuit, by Judge Sanborn, and was on an appeal from a decree rendered in the Circuit Court of the United States for the District of Minnesota, dismissing a bill brought by the Griswold Mfg. Company against John B. Harker & Co. for an infringement on the 6rst two claims of the patent on waffle irons granted in 1880 to Selden & Griswold. We print below the claims of the patent and quote a part of Judge Sanborn's decision:

 In a waille iron, the hinge upon which the pan opens, provided with one of the journals or pivots on which the pan is rotated.

2. The journals or pivots on which the pan rotates, formed upon or connected, one with the hinge upon which the pan opens, and the other on the handle for rotating and opening said pan. . . . .

to each half of the pan located directly opposite to the hinge and together forming another journal for the rotation of the

Turning to the prior state of the art, as it is disclosed by the record before us, we find that prior to the invention of these patentees the two halves of the double pan of a waffle iron were hinged together by a pin passing through two lugs or ears that projected from each half of the pan. Pindles projected from the double pan, on the sides of it relatively to the hinge, and at right angles to the plane in which the pan opened, and these pindles were journaled upon a supporting ring or frame in which the pan was suspended so that it could be turned upon the pindles. The pan was not provided with handles for turning it, but was made to rotate by pushing one side of it with a knife or some other itensil, and no pan of a waffle iron had ever been constructed, so far as this record discloses, which opened in the same plane with its axis of rotation, or which turned upon journals, one of which was connected with or formed the hinge, while the other was formed of the handles to the pan. In this state of the art the patentees made this invention. It is plain that there was nothing in the prior construction or use of waffle irons to restrict the claims of their patent.

or use of welle from to restrict the claims of their patent. . . . . . In our opinion, the first and second claims of the patent in the suit are neither anticipated nor restricted by the prior state of the art, nor by the patents pleaded in the answer, and the appellees are infringers of them.

The decree below is reversed with costs, and the cause remanded with directions to enter a decree in favor of the appellant for a perpetual injunction, damages and costs.

# ROOFING AND CORNICE.

The Piqua Metallic Lath.

The Cincinuati Corrugating Company, Piqua, Ohio, are now placing on the market the improved form of steel lath shown in the accompanying cut. The material used, it is stated, is the best grade of steel, in sheets 27† inches wide by 48 inches long, each sheet covering one square yard of surface. The sheets are traversed lengthwise at intervals of 31 inches by 4 inch corrugations, to provide great rigidity and stiffness to the entire sheet. Between the corrugations are formed a series of slots at right angles to the corrugations, the metal on either side of the slot being depressed into cup like shape, into which the mortar or plaster easily slides, and passing through forms a strong and perfect key, requiring less plaster than other forms of lath. It is pointed out that the Piqua lath requires no stretching, atiffening pieces, or staples for securing it to the frame work, common nails

awnings in that city has led to their growing adoption by storekeepers and others. Applications for permission to erect auch awnings are being received in large numbers by the Board of Highway Supervisors.

HILL & McGinty, 20-22 Pitts street, Boston, are a new coppersmithing and sheet metal house, who commenced business in April. They occupy a three story and basement building, the first floor being used as an effice and stock room. On the upper floors are located the workshops for the production of heavy copper boilers for kitchen use and sheet copper work for gutters, cornices and ornamental architectural copper work. Among the other goods produced by this firm are copper balls, such as are used with float valves, they being equipped with machlary for turning out balls having a diameter of 48 inches. They also manufacture flush tanks adapted for use with water closets.

Amono the contracts recently taken by James A. Miller & Bro., 129-131 South Clinton street, Chicago, can be mentioned the following: Six new skylights for Harrison Bros., for the Times Building; new cornice for the Atheneum Building; tile roofing and cornice work for the residence of J. W. Stevens, Grand Boulevard; tile and tin roofing for house and stable of Chauncey J. Blair, Drexel Boulevard and Forty-seventh street; repairs on roof of 19 school buildings for the Board of Education; copper cornice and skylights for building of P. J. Ryan, 310 Fifth avenue; slating and copper gutters for residence of D. B Jones, Lake Forest, Ill.

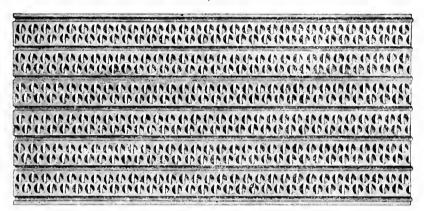
#### Correction.

In Chapter X of the article on Presa Working of Sheet Metals, published in The Metal Worker, July 28, there was a typographical error in the nineteenth line, second paragraph of the last column on page 33. The phrase as printed, "dividing the product by 4000" should have read "dividing the product by 1000."

Key West, Fla., will, in future, be a coaling station for the versels of the North Atlantic and Caribbean Sea fleet. Hitherto the Navy Department has ordered vessels cruising in the Caribbean Sea to coal either at Jamaica, Cartagena or Colon, where the price of bituminous coal ranges from \$9 to \$11 a ton. The same coal can, it is claimed, be put on board at Key West at a little over \$4. The saving will, therefore, be considerable.

In a recent issue we acknowledged the receipt of a series of unique blotting pads from Francis I. Maule of Philadelphia. These blotters illustrate in a novel and decidedly unconventional manner some of the capabilities of this method of advertising. Mr. Maule informs us that he will be pleased to mail this series of advertising blotters to any of our readers who will send their address to his offices, 328 Chestnut street, Philadelphia.

The Anglo-American Telegraph Company's new cable was lald in 12 days, the shortest time on record for such an operation. The steamship "Scotia," which started from Heart's Content, Newfoundland, on July 15, laid the deep sea section, and the "Britannia" the Irish shore section, a short one of 192 knots in length. The final splice was made on July 27. The whole operation was probably the most successful feat of cable laying ever accomplished, considering the size of the cable, which is the heaviest yet stretched under the Atlantic. The new cable is laid between Valentia, Ireland, and Heart's Content, Newfoundland. It contains 600 pounds of copper to the nautical mile, and has a larger conductor than any cable ever laid, which means a greater capacity and higher speed of transmission than any of the lay cables.



The Piqua Metallic Loth.

only being required for attaching it in position. It is remarked by the makers that while the lath is used quite largely in buildings of wooden construction, it is principally used in strictly fire proof buildings in connection with iron beams and furring, and that it is in such construction that the rigidlty and stiffness resulting from the corrugations make it epecially valuable, as the studding can be placed at least 2 feet apart, effecting a saving in the cost of studding. the lath is used in connection with iron, the usual method is to wire it into place. The manufacturers state that the lath is especially adapted to the use of adamant or patent plaster, and that the rapidity and ease with which it may be applied to round, aquare or angular surfaces, together with the fact that it affords a firm holding surface for the plaster, and its fire proof qualities, recommend its use in buildings.

#### FLASHINGS.

It is said the roof of the new Federal Building, in Wilmington, Del., which has just been completed, contains over 10,000 square feet of slate, a ton of lead and over \$1000 worth of copper.

THE RECENT PASSAGE of a law by the City Council of Philadelphia regulating the construction of galvanized iron

The heavy coppersmith work is done in the basement, where they have a plant for tinning copper kitchen ware. Mr. McCinty is an old and well-known architectural sheet copper worker, and has designed work for some of the handsomest buildings in Boston and vicinity. The concern are now engaged on a copper entablature for a fine building at the corner of Friend and Union streets, as well as the architectural copper work and skylight for the Telephone Building at Fall River.

BESIDES the metal work on the new Stratford Library and the Methodist Church at Derby, Disley & Weyand, Waterbury, Conn., have just put 35 ventilators on the new rubber factory at Naugatuck.

Behner & Norton, Hartford, Conn., are busy with heating and tinning contracts. They have the hot air heating in two houses for Clark & Loscher on Sergeant and Oxford streets, and have just finished a large roofing contract for Contractor Cook on the Abbe Building on Asylum street.

NICHOLAS ENNIS, a New York tinner, who was repairing a cornice on a building, accidentally broke an electric wire and was so seriously burned that he is in a critical condition.

# TIN PLATES.

American Tin Plate Production for Quarter, March 31, 1894.

The special report to the Secretary of the Treasury of Ira Ayer, special agent of the Treasury Department, relative to the production of tin and terne plates in the United States during the quarter ended March 31, 1894, with comparative statements of production, has been received at the Treasury Department and has been placed in the hands of the printer.

The following is a very full synopsis of the report. Colonel Ayer says:

I have the honor to report that during the quarter ended March 31, 1894, 36 firms manufactured 38,260,411 pounds of tin and terne plates proper, against an output of 27,351,241 pounds by 39 firms during the previous quarter.

Of the output for the quarter 27,765,-162 pounds, or more than 72 per cent., were made from sheets rolled in the United States, and of this amount 26,-382,273 pounds, or more than 95 per cent., consisted of the class of plates weighing lighter than 63 pounds per 100 square feet.

Of the commercial plates manufactured during the quarter 26,313,561 pounds were coated with tin, and 11,946,850 pounds were terne coated.

#### American Sheet Iron and Steel.

The quantity of American sheet iron and steel made into articles and wares, tinned or terne plated, was 2,162,889 pounds. This makes the aggregate output of tin and terne plate for the quarter from all sources 40,423,300 pounds; that of the previous quarter was 28,595,948 pounds.

The production for the quarter, subject to comparison with net imports under the Department's ruling, inclusive of products from American sheet iron and steel, tinned or terne plated, was 28,545,162 pounds, as compared with 16,553,716 pounds during the previous quarter.

The production for the three quarters of the fiscal year respectively, subject to such comparison, was as follows:

Quarter ended. September 30, 1893. December 31, 1893 March 31, 1894	16,5:3,716
Total nine months ended March	54.358.488

## Changes in List of Manufacturers.

The following companies made their first report of production to the Government, namely, The Chicago Stamping Company, Chicago, Ill.; George W. Jacques, New York City, and the Philadelphia Tin Plate Company, Phila-

delphia, Pa.

The Ena-Standard Iron & Steel Company, Bridgeport, Ohio, and the Elwood Tin Plate Company, Elwood City, Pa., were engaged during the quarter in erecting rolling mills for the manufacture of black plates. Their names, together with that of George W. Jacques, appear for the first time on the list. The works of Hughes & Patterson, as atyled in the previous report, appear under the name of the Philadelphia Iron & Tin Plate Works.

The Locust Point Iron & Steel Works Company, Baltimore, Md., has passed under the control of the Baltimore Iron, Steel & Tin Plate Company, and the

facture of tin and terne plates proper during the fiscal years ended June 30, 1892 and 1893 respectively, and the nine months ended March 31, 1894:

	Amount made from-				
Period of manufacture.	American black plate.	Percent. American,-	Foreign black plates,	Per cent.	Total.
Quarter ended : September 30, 1891 December 31, 1891 March 31, 1892 Juno 30, 1892	Pounds. 785,547 1,200 661 2,132,082 5,178,263	95.00 85.16 66.44 63.14	Pounds, 41,375 209,160 1,077,143 3,022,488	5.60 14.84 33.46 36.86	Pounds, 826,922 1,409,821 3,209,225 8,200,751
Totals	9,296,553	€8.12	4,350,166	31.88	13,646,719
Quarter ended : September 30, 1892. December 31, 1892. Murch 31, 1493 June 30, 1893		51 05 40.71 38 46 46.19	5,032,648 11,713,042 18,194,431 21,279,362	45.95 59.29 61.54 53.81	10,952,725 19,756,491 29,566,399 39,543,587
Totals	43,589,724	43.68	56,219,478	56.32	99,819,202
Quarter ended : September 30, 1893	15,907,669	32.40 58 16 72 75	18,351,453 11,443,572 10,495,249	67.60 .84 27.43	27,145,480 27,351,241 38,260,411
Totals	52,466,858	56.56	40,290,274	43.44	92,757,132

name of the former company has therefore been dropped from the list. Three firms suspended manufacture, additional to the six as shown in my last report. From three I was unable to secure any report.

#### Black Plate Product.

The production of black plates in the United States during the quarter was 30,070,701 pounds, and of this amount 23,514,881 pounds, or more than 78 per cent., belonged to the class weighing lighter than 63 pounds per 100 square feet.

The production of the previous quarter was 19,679,910, of which 17,197,664 pounds, or nearly 90 per cent., were of

the lighter class.

The production of American black plates of the class weighing lighter than 63 pounds per 100 aquare feet was 6,317,217 pounds in excess of that of any previous quarter since the law became operative.

Eighteen rolling mills made sworn returns of production, against 17 that made sworn returns for the quarter preceding.

#### Consumption of American Plates.

Of the 36 firms that made sworn returns of the manufacture of commercial tin and terne plates, 19 used wholly American plates, with an output of 19,552,682 pounds; 3 used wholly foreign plates, with an output of 3,020,992 pounds; 14 used both American and foreign plates, with an aggregate output of 15,686,737 pounds, of which 8,212,480 pounds were made from American black plates.

Fourteen stamping or other manufacturing companies that used American sheet iron and steel in the manufacture of articles and wares tinned or terne plated submitted sworn statements, as against 16 during the previous quarter.

#### Comparative Statements.

a. The following is a comparative statement, by quarters, of the manu-

b. The amount of American sheet iron and steel made into articles and wares, tinned or terne plated, during the same period was as follows:

Four questions Intel 1001 to Iuna	Pounds.
Four quarters, July 1, 1891, to June 20, 1892	5,620,867
50, 1892. Four quarters, July 1, 1892, to June 30, 1893.	8,802,681
Quarter ended September 30, 1893	1.052.813
December 31, 1893. March 31, 1894	1 244,707
Total	

c. The production by years of fine sheet steel or black plates in the United States, from July 1, 1891, to March 31, 1894, was as follows:

Period.	Lighter than 63 pounds per 100 s q u a refeet.	63 pounds per 100 square feet and heavier.	Total,
Year ended. Sept 30, 1891. Dec. 31, 1891. Meh. 31, 1892. June 30, 1892.	Pounds, 489,107 679 584 1,696,595 4,761,641	Pnunds. 3,016,066 4,593,416 4,909,370 6,067,537	Pounds, 3,5(5,113 5,273,000 6,605,965 10,829,178
Totals	7,626,927	18,586,329	26,213,256
Sept. 30, 1892. Dec. 31, 1892. Meh. 31, 1893 June 30, 1898.	4 821,180 8,575,541 13,287,507 14,208,192	4,2 2,277 5,444,675 6,361,848 6,789,321	9,023,457 14,020,216 19,649,355 20,988,513
Totals	40,892,420	22,789,121	63,681,541
Sept. 30, 1893. Dec. 31, 1893. Mch. 31, 1894.	8,147,092 17,197,624 23,514,881	3,208,276 2,4+2,246 6,555,820	11,355,368 19,679,910 30,070,701
Totals	48,859,637	12,246,342	61,105,979

#### Imports and Exports.

The quantity of tin and terne plates imported and entered for immediate

consumption, and of such as were imported on and after July 1, 1891, and were withdrawn from warehouse for consumption during the quarter ended March 31, 1894:

#### Imports.

	Lighter than & pounds	63 pounds and heavier.	Total.
Tin plates Terne plates.	Pounds. 98,838,930 6,307,182	Pounds. 2,329,821 46,857	Pounds, 101,168,751 6,354,039
Totals	105,146,112	2,376,678	107,522,790

The quantity of tin and terne plates on which duties had been paid, and which were used in the manufacture of articles exported, with benefit of drawback, during the quarter:

#### Exports.

	Lighter than 63 pounds	63 pounds and heavier.	Total.
Tin plates Terne plates.	Pounds. 34,787,747 18,298	Pounds. 69,386 112	Pounds. 31,857,133 18,410
Totals	31,806,045	69,498	34,875,543

#### Exhibits.

The following exhibits are appended: Exhibit 1.—Summary of production of tin and terne plates proper during the fiscal year ended June 30, 1892 and 1893 respectively, and the nine months ended March 31, 1894.

Exhibit 2.—Statements by quarters of fine sheet steel or black places produced in the United States from July 1, 1892, to March 31, 1894. The figures throughout are taken from the sworn returns of manufacturers

Exhibit 3.-Revised list of firms or companies engaged in tin and terne plate manufactures to March 31, 1894. (Signed) IRA AYER,

Special Agent.

Exhibit 2.—Stotement, by Quarters, of Fine Sheet Steel or Black Plates produced in the United States from July 1, 1891, to March 31, 1894.

Period.	Lighter than 63 pounds per 100 square feet.	63 pounds per 100 square feet and beavier.	Total.
Q'rt'r ended:	Pounds.	Pounds.	Pounds.
Sept. 30, 1891.	489,107	3,016,008	3,505,113
Dec. 31, 1891	679,584	4,593,416	5,273,000
Mar 31, 1892	1,696,595	4,909,370	6,605,965
June 30, 1892	4,761,641	6,067,537	10,829,178
Total	7,626,927	18,586,329	26,213,256
Sept. 30, 1892.	4,821,180	4,202,277	9,023,457
Dec. 31, 1892.	8,575,541	5,444,675	14,020,216
Mar, 31, 1893	13,287,507	6,361,848	19,649,355
June 30, 1893,	14,208,192	6,780,321	20,988,513
Total	40,892,420	,22,789,121	63,681,541
Sept. 30 1893	8,147,092	3,208,276	11,355,368
Sept. 30, 1893. Dec. 31, 1893.	17,197,664	2,482,246	19,679,910
Mar. 31, 1891	23,514,811	6,555,820	30,070,701
Total	48,859,637	12,246,342	61,105,979

Exhibit 3.-Revised list of firms or companies engaged in tin and terne plate manufactures, March 31, 1894. (a, made aworn return; s, manufactor preparing to make black plates; †, make only black plates; †, failed to make sworn returns; n, new com-

Note. - In the following list are included the names of such firms or companies only as were manufacturing. or had begun building operations, prior to March 31, 1894.

A. A. Thomsom & Co., a, New York, N. Y. Alan Wood Co., || a +, Philadelphia, Pa. Aliquippa Tin Plate Co., s, Aliquippa, Pa. American Stamping Co., a, Brooklyn, N. Y. American Tiu Plate Co., | a, Ellwood, Ind.

American Tin Plate Machine & Mfg. Co., a, Linfield, Pa.

American Tin & Terne Plate Co., a, Phila-

Adherican rin & Terne rate Co., a, ramadelphia, Pa.
Apollo Iron & Steel Co., a, Abollo, Pa.
Baltimore Steel, Iron & Tin Plate Co., a l,
Baltimore, Md.
Black Diamond Tin Plate Works, a, Phila-

Blairsville Rolling Mill & Tin Plate Co., a, Blairsville, Pa.

Britton Rolling Mill Co., a, b, Cleveland, Ph. Ohio.

Buru Stamping & Mfg. Co., s, Chicago,

Canonsburg Iron & Steel Co., a, Canons-

burg, Pa.
Chicago Stamping Co., a. Chicago, Ill.
Chicago Tin Plate Mfg. Co., a. Chicago,

Cheinnati Corrugating Co., s, Piqua, Ohio, Cleveland Tin Plate Co., a, Cleveland, Ohio.

Ohio.
Columbia Tin Plate Co., s, Piqua, Ohio.
Cumberland Steel & Tin Plate Co., #a+,
Cumberland, Md.
Duquesue Tin Plate Works, a, Pittsburgh,

Pa.
East River Lead Co., a, New York, N. Y.
Ellwood Tin Plate Co., || b n, Ellwood
City, Pa.
Falcon, Tin Plate & Sheet Co., || a +, Niles,

George W. Jaques, a n, New York, N. Y. Griffiths & Cadwallader, a, Pittsburgh, Pa. Gummey, Spering & Co., a, Philadelphia,

Indiana Tin Plate Mfg. Co., s, Atlanta,

James B. Scott & Co., ‡, Pittsburgh, Pa. Jennings Bros. & Co., Ltd., ¶a+, Pittsburgh, Pa. John Hamilton, a, Pittsburgh, Pa. Kirkpatrick & Co., Ltd., ∥a+, Pittsburgh, Pa.

Pa.
Lulance & Grosjean Mfg. Co., || a +, New York, N. Y.
Laufman Tin Plate Co., s, Butler Junction

tion, Pa.
Marsball Bros. & Co., | a, Philadelphia,

Matthai, Ingram & Co., a, Baltimore, Md. McKinley Tin Plate Co., ‡, Wilkinsburg,

Merchant & Co., a, Philadelphia, Pa. Meuer Bros. Co., b, Brooklyn, N. Y. Montpelier Sheet & Tin Plate Co., Montpe-

lier, Ind. lier, Iud.

Morewood Co., || a, Gas City, Ind.

Morewood 'fin Plate Mfg. Co., s, Elizabethport, N. J.

New Castle Steel & Tin Plate Co., || a, New

Castle, Pa. N. & G. Taylor Co., a, Philadelphia, Pa. Norristown Tin Plate Co., a, Norristown,

Exhibit 1.-Summary of Production for the Fiscal Years 1892 and 1893, Respectively, and for the Nine Months Ended March 31, 1894.

	ר	l'in plates.		т	erne pla	tes.	Tin and terne plates.		nt made m—		
Period from—	Lighter than 63 pounds per 100 sq. feet.	63 pounds per 100 sq teet and heavier.	Total.	Lighter than 63 pounds per 100 sq. leet.	63 pounds per 100 sq. feet and heavier.	Total.	Aggregate produc- tion.	American black plates.	Foreign black plates.	Total,	
First fiscal year after law became operative. July 1, 1881, to Sept. 30, 1891	Pounds net. 134,869 181,561 1,018,698 2,796,941	Pounds net 17,820 34,410 80,958 274,593	215,911 1,099,656	Pounds net. 442,552 1,046,879 1,907,869 4,715,236	net. 231,881 147,031 201,700	2,109,769	Pounds, net. 826,922 1,404,821 3,209,225 8,200,751	Pounds net. 785,547 1,200,661 2,132,082 5,178,263		Pounds net, 826,933 1,409,821 3,209,222 8,200,751	
Totals	4,132,009	407,581	4,539,590	8,192,536	914,593	9,167,129	13,646,719	9,296,513	4,350,166	13,646,719	
Second fiscal year after law became operative. July 1, 1892, to Sept. 30, 1892 Oct 1, 1892, to Dec. 31, 1892 Jan. 1, 1893, to Mar. 31, 1893 Apr. 1, 1893, to June 30, 1893	3,337,030 5,274,434 14,332,875 19,425,336			6,875,958 12,684,646 13,803,461 18,115,741	933,106 518,364	7,341,358 13,617,752 14,321,825 18,795,160	10,952,725 19,756,491 29,566,399 39,543,587	8,043,449 11,371,968	11,713,042 18,194,431	29,566,396	
Totals	42,370,681	3,372,126	45,743,107	51,479,806	2,596,289	54,076,095	99,819,202	43,599,724	56,219,478	99,819,202	
July 1, 1893, to Sept. 30, 1893 Oct. 1, 1893, to Dec. 31, 1893 Jan. 1, 1894, to Mar. 31, 1894	13,158,982 14,048,471 24,815,641	633,574	13,861,163 14,682,045 28,313,561	12,807,230 12,252,823 11,486,747	416,373	13,254,317 12,669,196 11,946,850	27,145,480 27,351,241 38,260,411	8,794,627 15,907,669 27,765,162	11.443.572	27.351.241	
Totals	52,023,094	2,833,675	54,856,769	56,546.800	1,353,563	37,900,363	92,757,182	52,466,858	40,290,274	92,757,132	

Norton Bros., a, Chicago, III. Philadelphia Tin Plate Co., a, Philadelphia, Philadelphia from & Tin Plate Works, || a \*,

Philadelphia, Pa.
Philadelphia, Pa.
Philadelphia, Pa.
Philadelphia Pa.
P. H. Laufman & Co., Ltd., # a, Apollo,

Pittsburgh Tin Plate Works, a, New Ken-

Pittsourgh i'm riate works, a, New Kensington, Pa.
Record Mfg. Co., a, Conneaut, Ohio.
Samnders, Fielding & Bond, ‡, New York,

8 merton Tin Plate Works, | a, Brooklyn,

N. Y. St. Louis Stamping Co., #a, St. Louis, Mo. United States Iron & Tin Plate Mfg. Co., #a, Denumler, Pa. Wallace, Banfield & Co., Ltd., #a, Irondale,

Ohio. Western Tin Plate Works, s, Belleville, Ill.

#### SCRAP.

JACOB MEURER of the tin plate manufacturing firm of Meurer Bros. Company, Brooklyn, has devised and constructed a labor saving machine by which the tlnned sheets, as they come from the cleaning and dusting machines, are cut, accurately trimmed and counted, and boxed. This machine will mark a distinct step in the progress of the American tin plate industry, and add another to the achievements in this line already made since the inauguration of tin plate manufacture in this country. The machine is, we understand, capable of disposing of the product of ten sets, and only requires the attendance of one boy to feed it with the tinned sheets. Mr. Meurer is now engaged in developing some further improvements in the line of tin plate machinery, designed to facilitate the handling and cleaning of the sheets.

IN THE TIN MILL of the Ætna Standard Iron & Steel Company, Bridgeport, Ohio, 150 men are employed, all of whom are American citizens.

J. H. ROOERS of the firm of E. Morewood & Co., who manages the firm's tin plate works at Gas City, Ind., is now in Wales.

A PRESS DISPATCH from Pittsburgh, Pa., reports that a fire, which occurred at the tin plate works of Griffiths & Cadwallader, Hazlewood, Pa., on July 18, did damage to the extent of **\$6000.** 

INCLUDED IN ORDERS for tin plate machinery recently received by the Leechburg Foundry & Machine Company of Pittaburgh, are three Mesta patent pickling machines. One of these is for shipment to Wallace, Banfield & Co., Limited, at Irondale, Ohio, which concern are making some improvements and additions to their plant with a view of considerably increasing their capacity. Another is for shipment to the Morton Tin Plate Company, Cambridge, Ohio, which concern are erecting a tin plate plant, while the third one is for

the Pittsburgh Tin Plate Works, Incorporated, New Kensington, Pa., this concern having now under erection three mills for rolling black sheets for tinning purposes.

THE WORKS OF JOHN HAMILTON, Pittsburgh, Pa., manufacturer of Hamilton's Best Redlpped American Roofing Plates, have been in operation right along, and the product is being sold as fast as turned out. The firm have some good sized orders on hand, and regard the outlook as very encouraging. The roofing plates made by this firm are giving excellent satisfaction, and the demand for them is constantly increasing.

MERRY & CLARK, 536-547 West Fifteenth street, New York, have built an additional story to their warehouse and have added an extension of 40 feet to their showroom, various sections of the new quarters being set apart for their leading brands of roofing plates, which include Merry's Old Method, Monarch Old Style and Merry's Lion. We understand that during the month of July they shipped over 4000 boxes of these plates.

### Trade Notes.

AN ANNOUNCEMENT of interest to the trade is made in our advertising columns this week by the Geuder & Paeschke Mfg. Company, Milwaukee, Wis. It relates to their Cream City Coal Hoda, an extra heavy line which they have brought out.

Wilson's Improved Air Tight Heater is illustrated and its chief tentures pointed out in the advertisement elsewhere of the Simmons Hardware Company, Incorporated, St. Louis, Mo. The stove is adapted to burn chips, shavings, bark, roots, corn cobs or cord wood.

THE ADVERTISEMENT of the Safety Furnace Pipe Company, Detrolt, for whom Riter Brothers, Philadelphia, are eastern agents, directs attention to Safety Furnace Pipe of their manufact-ure. The illustrations show Furnace Fittings, and it is pointed out in the text that their use saves money, time and trouble. They will send catalogue and price-list to those who apply.

THE RETORT Magazine Stove is illustrated in the advertisement elsewhere of the Marion Stove Company, Marion, Ind. The advantages of the stove are referred to and special emphasis is laid upon the fact that it will feed all kinds of soft coal.

THE WORRS of the E. W. Bllss Company, Brooklyn, N. Y., are running full time, with 460 men, and turning out a number of large orders for early shipment. They have shipped within the last two weeks the following of their new improved Trimming Presses for trimming drop forgings and heavy hardware: One 73½ press with cut off attachment; two 741 and one 75 presses. all for a large agricultural implement manufacturer; a 600 pound drop hammer and a 1500 pound drop hammer, taken by two large heavy hardware manufacturers, and a 400 pound drop hammer and a 31 toggle drawing press with a complete set of dies, both of which went to a lamp manufacturing concern in the East.

Mills Nos. 6 and 7 of the Whitaker Iron Company, Wheeling, W. Va., manufacturers of black and galvanized sheet iron, resumed operations last week, and will continue in operation as long as sufficient orders are received to keep

them employed. The new mills now under erection by this firm are expected to be in readiness for operations sometime during the latter part of August.

THE LEACH ROASTER & BAKER COM-PANY of Paxton, Ill., have just issued their first annual estalogue of the specialties which they manufacture. It comprises 24 pages of illustrations and printed matter, and is tastefully bound in a scarlet paper cover. In an introductory note the company state that they have found the publication of a catalogue necessary because they are now offering such a variety of articles. These comprise the Leach roaster and baker, the Travers improved roaster and baker, the Abell coffee pot, the Little Monitor tea and coffee cooker, the Magnet broom support, the egg and vegetable lifter, the Paxton separable bread and cake pans, the Lebanon beater, the Edgar grater, the Champion roaster, the Paxton stove pipe shelf, the new improved Perfection cake pans, Cook's rotary grater and slicer, the Perry separable cake pan, the Perfect eooking mat, Ristedt's combination holder, the Midget umbrella holder, the Buffalo steam egg poacher, Leach's stove pipe attachment, the Sensible mineing knife, the Lebanon cake cut-ters, and Dodge's cistern strainer.

THE COMBINED CLOTHES WRINGER & WASH TUB COMPANY were incorporated recently to manufacture Clothes Wringers and Wash Tubs in New York The capital is placed at \$25,000, and the directors named are Theodore Tottla and Geo. H. Plimpton of New York City, and Solomon Lewis of Melrose.

A CHARTER was granted at Harrisburg, Pa., on August 2, to the Scranton Chimney Cap Company of Scranton, Pa. Capital, \$30,000.

THE STUART & PETERSON COMPANY, Burlington, N. J., announce that they are now engaged in manufacturing Porcelain lined bathtuba, and solicit correspondence from contractors, builders and architects.

W. B. Hubbard, manager of the Boston house of Peek Brothers & Co., has been busily engaged in preparing the sample room for the advantageous display of lavatories, enameled baths and water closets. The features of the showroom, however, are the nickel plated lavatory, bath and other fixtures, effectively displayed on a black velvet background.

HOWARD & MORSE, 45 Fulton street, New York, manufacturers of Wire Goods, sustained some injury to their factory in Brooklyn in consequence of a fire on adjoining property on the night of July 24. Their stable was destroyed and an extention to building No. 10 of their plant was damaged. Loss, \$4000 to \$5000. The fire, we are advised, will not in any way interfere with the execution of any orders in hand.

CORDLEY & HAYES, 172 Duane street, New York, have brought out a new line of Indurated Fiber Ware, which, line of Indurated Fiber Ware, which, we are told, owing to new processes, they are enabled to produce more economically. The assortment includes Wash Basins. Spittoon Tops, Pail Covers, Slop Jar, Mats, &c. The advantages obtained in the improved patterns are a more shapely appearance, the Wash Basins approaching those enameled on metal, with regard to thickness of material. The goods have a cherry porcelain finish and are said to retain the good qualities of their "Fibrotta" or Lily Brand Fiber Ware.

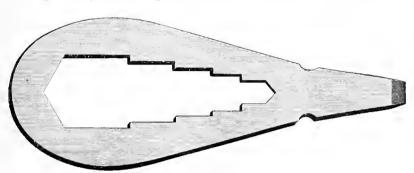
<sup>\*</sup> Same as Hughes & Patterson in former reports.

# THE RETAIL STORE.

## Combined Wrench and Screw Driver.

The accompanying illustration shows a combined wrench and screw driver, just brought out by the Coe Mfg. Com-

ters the back of the iron, and to this is attached a rubber tubing, the other end being placed on the gas burner. A wire bracket and spiral spring are provided to hold the upper portion of the rubber tube in a convenient position. The



Combined Wrench and Screw Driver.

pany, 98 Duane atreet, New York. The general features of the tool, which is intended particularly for bicycle use, are shown so clearly in the illustration that no extensive description is necessary. The wrench is adapted to five sizes of nuts, from  $\frac{1}{4}$  to  $\frac{5}{4}$  inch, the intermediate sizes being  $\frac{1}{2}$ ,  $\frac{9}{16}$  and  $\frac{11}{16}$  inch, and may be used with either square or hexagon nuts. The tool is made from  $\frac{1}{8}$  inch steel, handsomely nickel plated, and the end is finished as a screw driver. The cut is the full size of the device.

## Gasoline Stove Ware Adjuster.

The device shown in the accompanying illustration is the gasoline stove ware adjuster put on the market by the Wagner Mfg. Company, Sidney, Ohio. The device is a conical ring with a handle attached and its employment permits the use of round bottom cooking utensils and wafile irons on gasoline



Gasoline Stove Ware Adjuster.

stoves. Because of the conical form one side is adapted to fit No. 8 ware and the reverse side No. 9 ware. In addition to adjusting the ware to the stove it is pointed out that it equalizes and retains the heat under the cooking utensil.

#### Bolgiano's New Hot Air Perfection Gas Irons,

The accompanying cuts represent hot air gas irons offered by the Bolgiano Mfg. Company, 415 Water street, Baltimore, Md. The iron for household or laundry use shown in Fig. 1 is nickel plated and weighs about 7½ pounds. A bronze tube and mixer en-

iron consumes but a small quantity of gas, the cost being 5 cents per day for gas, as stated by the manufacturers. The points of excellence claimed for

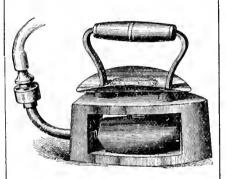
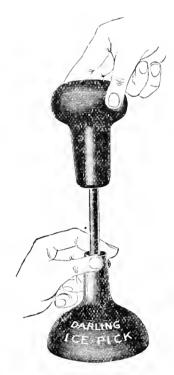


Fig. 1 -Household or Laundry Iron.

the iron by the makers are as follows: It is always hot, saves coal and does away with the overheated stove; it allows the room to be kept at a pleasant temperature, both in summer and winter; it saves steps from the ironing board to the stove, and can be operated sitting as well as atanding. The tailors'

The Darling Ice Pick.

Darling Filter Company, 26; South Water street, Cleveland, Ohio, are putting on the market the ice pick here shown. The cast head slides upon the pointed rod when in use and forces it into the ice. The cast bell is held



The Darling Ice Pick.

against the ice to prevent the particles from flying while the ice is being broken. The head or knob may also be used for breaking ice in the hand. The tool is finished in japan, and claimed by the makers to possess desirable features peculiar only to itself.

At a meeting of the Eastern and Western anthracite coal agents in New York City last week it was decided to

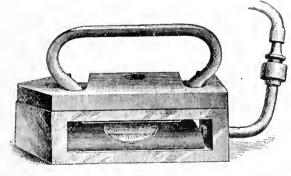


Fig. 2.-Tailor Iron.

iron, illustrated in Fig. 2, is operated in the same manner as the smaller iron. The makers state that it gets hot in five minutes; that there is no smell or dirt in using it, and that it is economical, costing but a few cents a day for gas.

limit the output for August to 2,500,000 tons and to maintain the present prices.

The strike of the iron miners on the Gogebic range was declared off on Saturday, after an idleness of six weeks.

# HEATING DO PLUMBING.

NEW WORK AND CONTRACTS.

N A. Kernan, Utica, N. Y., is remodeling the heating plant in his new home, the residence of the late Roscoe Conkling, and is using two No. 24 Royal hot water heaters, with both direct and indirect radiators.

A NEW SYSTEM OF WATER CLOSETS is being considered for three schools at Chattanooga, Tenn.

A MILLS BOILER, made by the H. B. Smith Company of Westfield, is being placed in the basement of the bank block at Palmer, Mass., by the Phillips Mfg. Company of Springfield.

THE COLLEGE AUTHORITIES of Middlebury, Vt., have made a contract for steam heating apparatus with Calhoun & Stewart to heat the library, reading room and gymnasium in Painter Hall and all the rooms in the chapel building.

A. V. FETTER has received the contract for doing the plumbing in the new Merchants' State Bank, at Rhinelander, Wis., and also for putting the heating and ventilating apparatus in the new school house at Whitewater.

THE FIRE DEPARTMENT COMMITTEE of Minneapolis. Minn., at its meeting last week, ordered that the furnaces in three of the engine houses should be taken out and replaced by steam heating plants. These stations are No. 4, Tweifth avenue, North, near Third street; No. 8, Blaisdell avenue and Twenty-eighth atreet; No. 10, Oak Lake addition.

THE BOARD OF STATE PRISON COM-MISSIONERS of Montana awarded the contract for putting in a hot blast heating and ventilating plant at the Eastern Penitentiary, at Billings, to the Adams-Rider Company of Helena, at their bid of \$5700.

AT THE MEETING of the Executive Committee of the Board of Trustees of the Winthrop Normal College, held at Rock Hill, B. C., last week, the contract for doing the plumbing of the new buildings was awarded to W. D. Dowd of Charlotte, N. C., for \$2800.

STEAM HEATING APPARATUS is to be put into Bearce Hall, Kent's Hill, Maine, and next year the school buildings will all be heated by steam.

FOSKETT & BISHOP of New Haven have the contract for putting the steam heating apparatus in the new houses of Geo. F. Hunt and John E. Hunt, Derby, Conn.

D. H. Kelly, Derby, Conn., is putting two Mahony steam heaters in R. W. Blake's tenement house on Caroline atreet.

THE BARLOW BROS. COMPANY, Waterbury, Conn., have the contract to put a steam heating plant in Mr. Rugg's house at Seymour.

Chas. Wheeler has the contract for the plumbing and hot water heater for L. F. Sherwood's new house at Southport, Conn.

GEO. RAPELYE, Bridgeport, Conn., has the contract for a Fuller & Warren combination hot air and hot water heater to be placed in C. B. Stanley's house on Lexington street.

M. J. Kibbe, Bridgeport, Conn., has the heating and plumbing contracts for D. E. Bradley's new house, at Berlin;

also for Dr. Gillen's house, in the same place. He has the plumbing work for two houses for Centractor Chas. Johnson ou Andrew street and one on Prospect street for Contractor Ralph Kent.

F. Horsfall has the plumbing contract for A. J. Sloper's new house at Bridgeport, Conn.

THE CONTRACT for placing the ateam heating plant in the new addition to the Bridgeport, Conn., Hospital has been awarded to the Bridgeport Steam Heating Company.

W. II. MEEKER & Co., plumbers, Norwalk, Conn., are placing a new steam heating apparatus in the City Hotel.

ARCHITECT HENRY A. LAMBERT, Bridgeport, Conn., is about to erect a residence for himself, to have a system of plumbing and to be heated by a furnace.

LANGDON & DALY, Main street, Hartford, Copn., have the plumbing and gas fitting of a house on Sergeant street for Clark & Loscher, the contractors, and one on Oxford street for the same parties; one on the corner of Broad and Rusa streets for John Cosgrove, and one in South Windsor for E B. Farnham.

T. H. LANODON, Hartford, Conn., has taken the contract to put in a Delamater Ericason hot air pumping engine at the new residence of Geo. P. McLean in Simabury. Mr. Langdon is making a specialty of these pumping engines. Mr. Langdon alao has the plumbing contract and the hot water heating with a Whitlock coil hoiler.

SIX THATCHER HOT AIR FURNACES will be used in the apartment houses which H. Harbison is erecting at Hartford, Conn. Each house will have a bath room and laundry tuba.

JAMES AHERN, Hartford, Conn., has the contract for the plumbing in Amos Whitney's new residence on Farmington avenue. There will be three bathrooms and six lavatories, all with the fineat fixtures. Mr. Ahern will also put about 20 closets in the new West Middle School.

THE BOARD OF CONTROL has awarded the contract for heating one-half the Lochiel School Building, at Harrisburg, Pa., to B. G. Carpen er & Co. of Wilkes Barre, who agree to put in a heating apparatus for \$2250 which will do the work.

THE PLUMBING CONTRACT for the new High School Building, at Brookline, Mass., has been awarded to James Tucker & Son of Boston.

J. II. Mack, Fitchburg, Mass., has been awarded the contract for the heating and plumbing of Walter Perley Hall's new house.

EXTENSIVE IMPROVEMENTS will be made to the Ohio State Reformatory Building at Mansfield, Ohio. Steam heating and other work will be done.

Contracts have been closed by customers of Hart & Crouse, Utica, N. Y., for Royal Boilers, to he used in heating the almshouse, at Middleburg, N. Y., the Church of the United Brethren, at Fort Wayne, Ind, the St. George's P. E. Church, at Flushing, N. Y., and two of their large steam boilers will be used at the Tressler Orphan Home, at Loyesville, Pa.

THE COUNTY COMMISSIONERS of Mankato, Kan., awarded the contract for putting in the heating plant at the new jail to A. O. Nepil of St. Paul, at his

bid of \$1205. He is to supply a radiation of 1400 lineal feet and guarantees the plant for two years.

THE SELECTMEN OF South Adams, Mass., have awarded the contract for placing steam heating apparatus in the Station House to H. S. Simmons of North Bennington, Vt., at \$590.

JAMES TRIBBEV has been awarded the contract to build a \$16,500 school house at Gas City, Ind. This does not include the heating.

A NEW SCHOOL BUILDING to cost \$12,000 is to be built at Leavenworth, Kan., which will have a heating and ventilating plant. The Morris School will have two new boilers put in at once, which will double the heating capacity. The Maplewood Building is also to have a furnace and other modern conveniences added at once.

SECRETARY OF STATE WM. F. HARRITY, Harrisburg, Pa., will receive bids till August 17 for the plumbing and repairs to the Senate, Assembly and several State departments for the year ending June, 1895.

O. H. GLOYD has contracted to do the plumbing work in the Grammar School Building at Thomaston, Maine.

THE CONTRACT for heating and plumbing Sanborn Hall, at Hanover, was awarded to Lee Bros., Concord, N. H.

THE SCHOOL BOARD, Doylestown, Pa, have awarded the steam heating contract for improvements in the heating plant in one of their school buildings to Rufe Bros. for \$1950. The improvements will include a complete set of new boilers and radiators.

At the special school meeting of the Eighth District, Manchester, Conn., if was voted to furnish an independent heating apparatus for the new part lately added to the school buildings, and a committee was appointed for the purpose.

A HEATING PLANT for the school at Lincoln, R. I., is being considered.

THE SANITARY HEATING & VENTILATING COMPANY of Peoria, Ill., have been awarded the contract for the heating and ventilating apparatus for the Fort Dodge, Iowa, Post Office for \$4270.

THE KIDDER MACHINE COMPANY, Franklin, N. H, have accured the job to remodel the heating and sprinkler system at the Dodge, Davis & Company mill, Bristol.

THE UNDERHILL HEATING & VENTILATING COMPANY bid \$3500 and were awarded the contract for heating the school at Williamstown, Mass.

Bids for heating and ventilating School No. 19, on Rebecca avenue, Scranton, Pa., will be received by the school hoard.

SEALED BIDS for constructing a steam heating plant in the Lake Park School Building, Dea Moines, Iowa, will be received by Nelson Royal until August 21.

Picard & Son have obtained the contract, amounting to about \$6000, for placing a heating apparatus in Levis College, Quebec.

THE CONTRACT for plumbing, heating and ventilating the new school of St. Joseph's parish has been given to the Pawtucket Steam & Gas Pipe Company, Pawtucket, R. I.

R. D. Nixon has been awarded the contract for plumbing in the new barracks building of the Western Military Academy, Alton, Ill.

# STOVE TRADE NOTES.

### The Chicago Stove Trade.

Stove houses are having their usual experience at this time of the year with countermands. It had been supposed that merchants were buying so conservatively that they would be certain to take in such stoves as they had ordered for fall delivery. With money easy, with no special strain on general financial resources and no panic in sight or even fcared, the situation seemed so much better than last year that the stove trade was expected to go along without a hitch, although no one anticipated a volume of business anywhere near the average, on account of the depression in manufacturing lines, together with the low price of farm produce. But along came the railroad strike, interfering with shipments of perishable products and checking the operations of innumerable local industries, disheartening merchants in many places and making them faint hearted just as they had begun to pluck up a little more courage. On top of that, as if nature had joined forces with man to ruin the country, a period of drought culminated last week in a scorching wind, which swept through the Missouri Valley region and shriveled vegetation over a wide expanse of country. The destruction wrought is believed to have been overestimated, as rains have since fallen in that part of the country, and crops are often found to have a remarkable recuperative power. But the late crops will unquestionably be smaller than farmers will wish to see and merchants are anticipating their inability to buy liberally of stoves and other house furnishing goods.

Manufacturers are taking the situation philosophically. They have passed through so much of a discouraging character the past year and a half that they have been taught patience and quiet submission. If there is a chance that stoves taken would not be paid for, they say it is better for them to keep the stoves in their own warehouses or, in fact, not order them made up, and save the investment in material and labor. Another consideration also induces the philosophic temperament. The writer was in a stove house a few days since when the manager read a very appalling letter from a customer, who begged to be released from his agreement to take certain stoves which were to be shipped September 1, stating that crop prospects in his neighborhood were very doubtful, and it was a serious question whether any of his patrons would be able to buy a stove

this fall. It sounded like a countermand of a carload order, at least. The manager turned to his books to see the size of the order which this customer had placed with the firm's salesman and found that it called for just two stoves! As most orders placed this year are not much larger, it will be seen that countermands are not so serious as they used to be.

It is fortunate that all parts of the West are not afflicted with the short crop scare. This is a big country and the West forms a big part of it, and an important section of the West is in excellent condition. There are localities in which trade is fair at this time and promises to be better as the sesson advances. Even the drought-stricken districts may turn out much better in the "round up" than is now expected.

#### S. B. Sexton & Son,

Baltimore, Md., have brought out a new catalogue for this season, which they are distributing to the trade. This which was established in concern, 1839, make a very extensive variety of Baltimore fire place heaters, stoves, ranges and furnaces. In the catalogue before us attention is directed to these goods, with numerous illustrations showing the appearance of the heaters. opening pages are given up to the Baltimore heaters, the Sexton's Grand, the Sexton's Improved Model, the Sexton's Eclipse, Sexton's Daisy. Sexton's Inaugural, Sexton's Improved Original, Sexton's New Charm, and Sexton's New Victor heater. These heaters are shown set in position and their special features are referred to in the accompanying text. The next goods noticed are Sexton's gas burner and Sexton's first fire place heater of the 1848 pattern. The design and construction of this old stove presents a curious contrast with the present Grand heater, which is the latest development. Two pages of sectional illustrations show the method of setting the Sexton heaters. A number of pages are given up to repairs, after which Sexton's brick and portable ranges are noted. styles of brick set ranges are shown with particulars of sizes and prices. The Baltimore ranges are next illustrated with horizontal boiler, eight different atyles being shown. This form of boiler has been brought out to meet the demands of the trade for this sort of arrangement. A line of ranges with the usual vertical boiler is next shown. The section of the catalogue following, pages 58 to 75, is devoted to portable ranges. At the close of this section heating stoves are noticed, and the remainder of the volume, with the exception of a few tables of registera, capacity of pipes, &c., is given up to the hot air furnaces, their line at pres-ent consisting of 22 furnaces, eight sizes and five different styles of construction.

## The Rock Island Stove Company

of Rock Island, Ill., have issued a fine catalogue for the season of 1894 95, descriptive of their Riverside stoves. comprises 128 pages and is bound in fawn colored heavy paper covers, with embossed gilt title. The contents open embossed gilt title. The contents open with illustrations and descriptions of the New Home Riverside range, a new line for soft coal and wood, brought out for this season. It is a five-hole range, and is shown in a variety of styles. Next follows the Riverside six hole range for soft coal and wood, also shown in a number of styles. Riverside range is also made with duplex grate for hard coal or wood. The Home Riverside is a four hole range in two sizes; the Ideal Riverside is also a four hole range in two sizes, both being furnished in any style. The Rock Riverside is a new medium priced tione of four-hole ranges. The cook stoves illustrated are the Home Riverside, in two series, the Ideal Riverside, the Rock Riverside and the Wood Riverside. The heating the Wood Riverside. The heating stoves made by the company include the Maple Riverside, a new wood base heater in two sizes. heater, in two sizes, nicely ornamented and finished with a large top for cooking, having a swing cover; the Riverside Oak, reconstructed and greatly improved for the season of 1894, and the Island City cannon stove. catalogue is replete with features of interest to the buyer. Not only are code words systematically arranged for economical telegraphing, but characters and abbreviations are given to save time and space in making up orders. Sec-tional cuts are also used to show the various parts of stoves and to thoroughly explain their internal arrangement. A very instructive sectional cut shows how to clean a stove or range. Some 10 pages are devoted to a very thorough list of repairs.

#### ODD PLATES.

F. M. Borden & Bro., 118-122 North Second street, Philadelphia, send out a buff card, printed in brown ink, stating, "The season for stove repairs is here," and asking, "Are you prepared for the rush?" The card then cnumerates the varied line of stove fittings, furnishings and supplies which they are prepared to ship promptly. They have the sales agency for the Abram Cox Stove Company and the Leaf Stove Company.

THE ART STOVE COMPANY, Detroit, report that their display at the Antwerp Exposition was received with marked attention, and their agent on the Continent advises them that the Europeans take kindly to American goods. They were particularly successful with their line of oil heaters.

THE DIPPO MFG. COMPANY, Cleveland, Ohio, whose Ferrosteel ranges have met with such success, publish a neat little pamphlet entitled "Blue Book for the Stove Trade." This is sent out under date of August, 1894,

and is addressed to dealers and others interested in the Ferrosteel goods. It contains a short treatise on the general advantages of steel, followed by special reference to Ferro steel and the application they have made of it. Then follows a general account of their works at Chagrin Falls and the advantages they possess in their location, special reference being made to their water supply, which is one reason, they say, why their nickel plated castings are so highly finished. At the close two or three pages are given up to the Ferrosteel ranges and the special features of the different styles. The trade will be interested in securing a copy of this pamphlet, which is sent on application.

The Girard Stove Works, Girard, Ohio, have decided to purchase the plant of the Youngstown Foundry Company, Youngstown, Ohio. They will put up new buildings for enlsrging their business and will remove their stove plant to Youngstown. They will also increase their capital stock to \$40,000.

THE PORTLAND STOVE FOUNDRY COMPANY, Portland, Maine, have brought out a neat circular relating to the Atlantic furnace of their manufacture. A broken view is shown of the apparatus, printed in red ink, making a neat contrast with the text, which appears in blue. A full account of this furnace is given in the circular, together with views of residences heated by it. The last page of the circular illustrates and describes the Atlantic combination heater, which is referred to as a valuable supplement to their line of Atlantic furnaces.

"THE FOX SMOKE CONSUMING FUR-NACES FOR SOFT COAL" is the title of a brown bound pamphlet sent by the Fox Furnace Company, 28 Vincent street, Cleveland, Ohio, who manufacture the Fox furnacea. The soft coal furnace, Fox furnacea. The soft coal furnace, it is pointed out, is an apparatus for which there is a growing demand, and this concern have given particular attention to making a suitable heater for In an introductory using this fuel. paragraph the durability of this furnace is dwelt upon and the smoke consuming feature is then described with suitable The Fox furnace is then illustrations. taken up and all its different featuresgrate, dust flue and fire pot—noted; both the cast and wrought iron radiators are given attention, and the joint used in connecting the atecl plate to the casting is illustrated by a sectional view. The last furnace shown is the Fox furnace, with steel plate radiator, for wood or soft coal. All particulars of the apparatus are given, together with tables of sizes.

The supplement to catalogue and price-list No. 97, issued by Buck's Stove & Rauge Company of St. Louis, Mo., is a neat pamphlet of 30 odd pagea, describing a line of interesting goods. Since issuing their last catalogue and price-list the company have designed and manufactured a number of first-class stoves and ranges, which they commend to the favorable notice of the trade. They say this supplement will give the trade an idea of the nature of their extensive additions, and they issue it as advance sheets of their regular annual catalogue, which will include the full line of their manufactures, and which will be ready January 1, 1895. A large part of the present supplement is given up to Buck's steel ranges, opening with a general description of the apparatus and all the special features being pointed out. A skeleton cut of a Buck's steel range very clearly

shows the constructive features and the design of the cooking apparatus. Separate cuts of the different parts are also given. Thirteen styles of Buck's steel ranges are shown, which is a variety of modification sufficient to meet all the wishes of the housewife. At the end of the pamphlet attention is directed to Buck's parlor stove and Buck's oak in four styles. Buck's Superb cottage is a handsome wood stove shown at the end. A separate leaflet issued at the same time relates to Buck's Royal heater, a stove of handsome design and elegant finish.

The Detroit Galvanizing & Sheet Metal Works, Detroit, send out attractive circulars relating to the improved air tight heating stove Surprise, which they manufacture and sell. The stove is made of planished or amoeth iron with sheet steel lining, and, it is pointed out, will burn cordwood, corn cobs, &c., in fact anything burnable that can be put into a 13 inch round hole. A half tone engraving of this heater is shown in the circular, and particulars of construction and merita are pointed out.

THE PITTSTON STOVE COMPANY'S WORKS, Pittston, Pa., resumed work on Monday full handed. About 150 men and boys are given employment.

Mantels, register frames and register borders, slate for use under school house heaters and hot air furnaces, in any size and shape, can be supplied by the Monson, Maine, Metal Slate Co., Boston. They also carry in stock a full line of slate hearths and chimney tops, and are in a position to promptly fill orders for slate to dimension for special requirements.

THE WALKER & PRATT MFG. COMPANY, Boston, Mass., iasue a small 12-page pamphlet entitled "About Flues" and bearing the inscription "The auggestions are designed to make clear to those who use furnaces and ranges the conditions necessary for their satisfactory operation." The perusal of this book will prove of advantage to these who are about to engage in the fall business of setting up stoves, ranges and furnaces.

D. H. Erdman, Camden, N. J., manufacturer of the Giant heaters is at Island Heights, N. J., for the summer.

WE ARE INDEBTED to the Portland Stove Foundry Company, Portland, Maine, for a photograph of their new Atlantic Grand range, a very hand-some piece of kitchen furniture. The range is provided with a base, has end ash pit, reservoir and an elevated warming shelf, to which is attached a back guard furnished with plate warmers, while a high shelf adds to the attractiveness and completeness of the design. A nickel panel embellishes the oven door, and a shelf is attached below. The door in addition to having a nickel knob is provided with a kicker for opening. A towel rack, provided with an Alaska knob, hangs from the fire box end. The range is provided with a large feed door, a draft slide of generous proportions in the ash pit door, providing for an ample supply of air. A modern labor saving grate and large fire box door are also provided.

THE MUSICAL WORLD will be charmed with a circular lately issued by the Troy Nickel Works, Troy, N. Y. It is a folder carrying on the outside illustrations of some of the well-known Alaska gooda and on the inside a beautiful song with music entitled "Lift Thine Eyes." The instructions are that it

must be played with 18 banjoes and one medium sized Gatling gun.

A RECENT ISSUE of a local paper published at Rondout, N. Y., contains an advertisement in verse of the Canfield Stove Company of that place. The argument of the poem is that the New Process vapor atove, sold by the Canfield Stove Company, is the most excellent thing of its kind.

S. A. Lord of the Great Western Stove Company, Leavenworth, Kan., was presented with a handsome silver service, July 27, it being the twenty-fifth anniversary of his connection with the firm.

### New Leader Stoves.

The Collina & Burgie Company, 225 West Twelfth atreet, Chicago, have brought out some new stoves this season, in which are embodied some notable features. Conspicuous among their heaters is the Grand Leader base burner, which is made in three sizes. This stove is of exclusively new design and is unusually well proportioned. It belongs to a type of stoves which has proved very popular the past year or more, yet ia distinctive in its decorative appointmenta and in the principles of its construction. The dome top is gracefully curved, straight lines being avoided as much as possible, while each of the four corners is finished with a bold swell somewhat in the form of a leg of mutton, or the style of sleeves now so fashionable in ladies' dreases. The similitude to a lady'a dresa is further continued in the shape of the front of the nickeled cap, which curves down to a point over the stove doors like a bodice. Double mica doors open up the full hight on each side of this point. The base is made exactly equilateral, so that any one of the four sides of the nickeled skirting will fit any of the other sides. The fire pot can be taken out through the front doors of the stove, but Manager Moffatt thinks that the fire pot of this stove will not need to be taken out, as it is cast as thick at the top as at the bottom, so that it is almost proof against cracking.

The Royal Leader is a new six hole range of handsome design. The front is curved, the oven door is deeply swelled, the edges are nickel trimmed and the guard in the rear of the top is of an attractive pattern. The oven is fitted with a revolving bottom. ia a circular open work casting, pivoted in the center, on which articles can be set in front and then easily shifted to-any part of the oven. An interesting point is the arrangement of the pipe ahelf. This is made to fit exactly on the top of the guard rail. The guards on all the company's ranges are of the same size, so that one of their plpe shelves will fit any of their ranges. The high warming closet is built in the same way to fit any pipe shelf, while the pipe shelf will form the bottom of the warming closet. This avoids the carrying of a large assortment of pipe shelves and warming closets in atock.

The Head Leader and Home Leader are also new aix-hole ranges. The Head Leader has a flat grate and the Home Leader a duplex grate with detachable shank, permitting the grate to be removed and a new one inserted without disturbing the lining. The detachable grate is now made by the Collins & Burgie Company with a triangular socket and shank, so that the operator cannot fail to restore the grate to its proper position after shaking. These ranges are made in two sizes and furnished in all styles.

# TRADE REPORT.

### The Iron Market.

In the majority of the great markets and in the trading lines there is a dia-It is not tinct increase in the demand. enough to be particularly jubilant over, nor is it general or uniform Consumers have been atarving themselves so long that they are forced into placing orders for supplies. The railroads are giving out some work for renewals and repairs. They are doing a little in cars and in bridges. Possibly this may appear more encouraging than it ought to be, because it compares with previous months of complete apathy. The situation in the Connellsville Coke region has taken an unfavorable turn, so that the starting of a number of furnaces during the past few days may prove to have been premature. The Wire trade, the largest consumer of Soft Steel, is beginning to show signs of revival, the inquiries for Rods having become larger and more urgent. It must not be forgotten that conditions are abnormal both as to supply and as to demand, and that both are pretty evenly balanced. Prices could not help feeling a change in the situation created by even a very modest increase in consumption. The general business does not seem to encourage hope in that direction, but still it is possible that a settlement of the tariff question may start the ball rolling.

Pig Iron. - Business in the New York market continues exceedingly dull. In that part of the State north of Albany and Troy the Buffalo producers are making low prices. The stove trade is spoken of as very dull, while the makers of water works supplies are busy and the machine shops are doing a fair amount of work. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tlderor No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25 \$10.25.

Philadelphia advices note that there is not an unusually heavy demand for Pig Iron in that market, but from general indications it seems probable that the demand exceeds the supply. This has not been to an extent to affect prices, but in the long run it must do so, unless there is some change in the proportions. Low priced Irons are very closely taken up, and while there is no real scarcity of other grades, the supply is small enough to enable holders to be very firm in regard to prices. General quotations for Philadelphia and near-by points are about as follows:

J 1		
Standard No. 1 Foundry X.	 \$12.50 @	\$13.00
Standard No. 2 Foundry X.	 11.50 @	12.00
No. 2 Plain	 10.75 @	11.00
No. 1 Soft	 11.50 @s	11.75
No. 2 Soft	 10.75 @	11.00

A more cheerful tone is reported as perceptible among the sellers of local Coke Iron in Chicago. They have enjoyed a much larger trade than for either of two previous weeks and inquiries are coming in quite freely from expectant buyers. Among the orders placed were

several for 1000 ton lots and one or two for about 1500 tons. Prices, however, have not advanced with the improved movement, but some modifi-cations have been made in quotations. A somewhat better business was transacted in Southern Coke Iron, but only in soft grades, the largest reported sale being one for 300 tons. Lake Superior Charcoal is in slightly better demand, but prices are a little easier. Quotations are given as follows for cash: \$14.25 @ \$15.00

Lake Superior Charcoal	\$14.25 @	
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10,00 @	10,25
Local Coke Foundry, No. 3	9,50 @	10,00
Local Scotch	10.25 @	10.50
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	Ø	
Southern Coke, No. 2	10.75 @	11.00
Southern Coke, No. 3	10.50 @	10.75
Southern, No. 1, Soft	10.75 @	-11.00
Southern. No. 2, Soft	10.50 @	10.75
Tennessce Charcoal, No. 1	@	
Tennessee Charcoal, No. 2	@	
Alabama Car Wheel	17.50 @	18.00
Jackson County Silvery	15.25 @	16.00

In the Pittsburgh district Foundry Iron continues dull in demand at un-changed prices. The following quotations sre given for forward delivery: 

While the volume of business in the Cincinnati district has been small during the week, there has been some gain in confidence, for the volume of business during the month of July was quite as large as in June and somewhat better prices have been obtained. The Southern furnaces have not much Iron to sell and those which have some Iron on hand are holding it out of market because they are convinced they will be able to get better prices later in the season. There are ample offerings of No. 1 Foundry, but there is not much demand for this not much Iron to sell and those which there is not much demand for grade, while No. 1 and No. 2 Soft are scarce and in good demand. No. 2 Foundry is selling fairly well on the basis of \$7.25, f.o.b. Birmingham. The Iron Pipe works are melting considerable Iron, but are obtaining it on old contracts. All parties are looking for a revival of general trade and are impatient at the delay in passing the tariff bill in some shape. Prices of Iron are without quotable change. Quotations are as follows:

-	
Southern Coke. No. 1 \$10.25 @ \$	10.50
Southern Coke, No. 2 9.50 @	9.75
Southern Coke, No. 3 9.25 @	9.50
Ohio Soft Stone Coal, No. 1 14.50 @	15.50
Ohio Soft Stone Coal, No. 2 14.00 @	14.50
Lake Superior Coke, No. 1 12.50 @	13.00
Lake Superior Coke, No. 2 11.50 @	12.00
Hanging Rock Charcoal, No. 1., 16.00 @	17.00
Hanging Rock Charcoal, No. 2., 15.50 @	16.00
Tennessee Charcoal, No. 1 13.00 @	13.50
Tennessee Charcoai, No. 2 12.00 @	12.50
Standard Southern Car Wheel 16.25 @	17.00
Lake Superior Car Wheel and	
Malleable 16.25 @	16 75

The Pig Iron situation in St. Louis does not show any material change. The scarcity of No. 1 Soft and No. 2 Foundry Irons still continues and prices of these two grades are firmer in consequence. Consumers are beginning to take some interest and there are more inquiries in the market. The output is not heavy and there are no large stocks of Iron on the furnace banks. The general situation is ateadily improving and some effect is likely to be felt in

prices before many days. Quotations are given as follows for cash, f.o.b. cars St. Louis :

dry 9.75 @ 10.00 Southern Car Wheel 16.50 @ 17.00

Birminghsm (Ala.) reports indicate extreme duliness in the Pig Iron market, which is in a very peculiar condition. On the one hand the furnaces claim to be asking from \$8 for No.1 Soft and No. 2 Foundry on new orders, while on the other hand it is reported that less than \$7 was paid for a round lot, some 2500 tons, of these grades. Small orders are plentiful, but furnaces claim to be firm in refusing to sell ahead or make immediste delivery below quotations given. No. 1 Foundry is quoted at \$8.50 @ \$9; No. 1 Soft and No. 2 Foundry, \$7.50 @ \$8; No. 3 Foundry, \$6.75 @ \$7.

### Metal Market.

Pig Tin.-The market has been dull and heavy throughout the week. The arrivals hardly average consumptive demand and almost entire absence of speculative interest, along with reported heavy shipments from the Straits the past month, combined to more or less seriously affect the market. Jobbing parcels are being sold at prices very close to those quoted for round lots, but consumers generally are buying cautiously and do not appear to be tempted by the previously low prices. The importations last month were about 1500 ions, or considerably in excess of the estimated consumption. Straits shipments were heavy also, including 3300 tons to Great Britain and America and 600 tons to the Continent, against a total of 2425 tons for the corresponding period last year. The amount of Tin in sight would thus appear to have increased several hundred tons, leaving the statistical position worse than it was a month ago. The visible supply for Europe and America is now estimated at nearly 21,000 tons. A year sgo it was about 15,000 tons.

Copper.-There has been no distinctively new movement. Most of the Lake Superior producers are well sold ahead and busily engaged making deliveries on old contracts. The Montana and Arizona companies doubtless lost custom by what may be termed the "drive" recently made by prominent Lake Superior concerns, but they make a showing of indifference and work in a secretive way that is not only suggestive but which encourages the idea that matters are not as smooth as represented. The demand from smaller consumers has been unimportant, and prices for small lots of Lake Ingot remain unchanged at about 101¢ \$ 1b.

Sheet Copper.-The demand for Manufactured Copper is still dull. An absence of large inquiries is noted, while buying is limited to immediate needs. For small lots from stock, jobbera' price is 15¢ \$\mathbb{B}\$ lb, net basis.

Pig Lead. — While the extreme prices reached last week for spot stock have not been duplicated, except in remote instances, the market still shows very firm tone, and it is doubtful if car lots can be purchased below 3 65¢ at this writing. Small lots of American Pig are quoted at from 35¢ @ 4½c @ lb, the higher being the figure at which sales are most frequently made. Supplies in this district are limited, but they are sufficient for the present moderate demand.

Lead Pipe and Sheet.—The month of July was marked as one of exceptional duliness among dealers in manufactured Lead for plumbers' uses. The absence of speculative building in this section has restricted the demand very considerably, and this has been felt seriously by the trusts which eater to the builders. The more conservative concerns have not felt the falling off quite so keenly, yet a large and representative firm of this character experienced a decline of 20 % in sales during July compared with those of the same month of last year, when the business depression was severe. Stocks in both manufacturers' and consumers' hands are low. The outlook is not generally reported as oright, although a fair buying movement to fil present requirements would probably follow a settlement of the tariff question.

Spelter—On the surface the market has a weaker appearance, and the offering of stock for early shipment from primary points is freer than it has been for some time past, which would indicate that more or less accumulation of stock at smelting works has taken place recently. Small lots of Western still rule at about 44¢ 7 lb.

Sheet Zinc.—The demand for this material shows no appreciable expansion, and prices have been lowered, jobbers' rates for 600 lb casks being quoted at  $5\phi \otimes 5\phi$ , and that for small quantities at  $5\phi \otimes 5\phi$  lb.

Antimony.—The jobbing trade is moderate and prices are about holding their own. Spot figures for small parcels of Hallett's are 10¢ and Cookson's 10¾¢ \$\partial 1b\$.

Tin Plate.—No improvement has taken place in the volume of business or in the character of orders. It has been almost a hand to mouth business, since consumers outside of the large ones engaged in export business, who receive a drawback, are extremely careful pending the outcome of tariff legislation. Early in the week a few large orders were placed mainly for special sizes of Cokes for future shipment, but this class of business as a rule has been very dull. Stocks here are very moderate, but there is plenty of material on the other side awaiting shipment at short notice. American Roofing Plates of the finer grades command a good sale at remunerative prices. Otherwise prices, although showing no radical change, are inclined to softness.

A special London cable dispatch of August 1 to The Iron Age thus describes the British Tin Plate market: In the Tin Plate market there has been very little change. Buyers are supplying only immediate wants, and while some makers quote slight concessions in order to keep mills going there is no radical change in prices. More inquiry is noted for oil sizes and a few lines were placed at below recent quotations. There is a doubtful feeling as to the future. Prices f.o.b. at Swansea are as follows:

Sheet Iron.—A slight increase is noted in inquiries for Black and Galvanized Sheeta, but the consumptive demand is still moderate so far as jobbers are concerned. Mills are reported as being busy on orders, how ever. Those making Black Plates for tinning, especially have all the orders they can fill. Prices show as yet no improved tendency, but remain on the low level established some months ago. Galvanized Sheets in small lots are quoted at 75 % @ 75 and 5 % discount.

## Chicago Report.

Scrap.—Trade continues very light. Dealers quote the following list of buylng prices, Chicago delivery:

	et ton.	Per ID
	\$7.00	
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
No. 2, such as provers, moss,	3.00	
&c Old Boilers—whole (Iron)	3.00	
" (Iron)—cut in single	0.00	
(Iron)—cut in single	5.00	
Sheets and Rings	0.00	****
Old Gas-Pipe and Boiler	5.00	
Tubes	3.00	
Cast Borings		
Turnings	4.00	
Horseshoes	8.00	51/4
Copper Bottoms	• • • •	51/4
Copper Clips and Heavy	• • • •	7 €
Heavy Brass		516¢
Light Brass		3 ¢
Pipe Lead		2/40
Tea Lead	• • • •	2 #
Zinc		2 0
Bubber		31/6
		~

Anthracite.—Business is quiet. Carload lots of 12 net tons or over are quoted as follows:

•	Egg, Sto.	
	Grate.	and Ch.
Chicago, Ill	\$5.25	\$5.50
Milwaukee, Wis	5.25	5,50
Kansas City, Mo	8.45	8.70
Council Bluffs, Iowa	8.45	8.70
Lincoln. Neb	8.60	8.85
Sioux City, Iowa	8.45	8.70
Aberdeen, S. Dak	8.50	8.75
Dubuque, Iowa	6.55	6.80
Madison, Wis	6.75	7.00
	7.75	8.00
St. Paul, Minn	6.75	7 00
Burlington, Iowa	8.20	8.45
Des Moines, Iowa	6.55	6.80
Davenport, Iowa	8.45	8.70
St. Joseph, Mo		8.70
Leavenworth, Kan	8.45	8.70
Omaha, Neb	8,45	8,70

#### Colorado Anthracite.

#### COLORADO FUEL & IRON COMPANY.

Denver	\$8,00
Pueblo	8,00
Colorado Springs	8.00
Leadville	8.00
Leady III	10.00
Cheyenne, Wyo	
All points between Denver and	8.85
Missouri River	0.00

The June report of the Philadelphia & Reading Coal and Iron Company makes a better showing than has been the case for some time. The gross receipts are given as \$2,348 983, and profit from mining \$211,741, against operating expenses, improvements, &c., amounting to \$2,137,243 Deducting fixed charges, there is a surplus for the month of \$39,532, against a deficit of \$93,132 in June, 1893. The seven months of the current fiscal year show, however, a deficit of \$552,343, against a deficit in the corresponding period of last year of \$706,189.

#### CONDITION OF THE

# Hardware Trade.

THE IMPROVED CROP REPORTS have had a good effect on the feeling of all business classes, but the uncertainty regarding tariff changes prevents any general willingness to order more than for immediate requirements. This policy has been carried by many to a point where its disadvantages more than offset its advantages. Reports from the different sections of the country indicate considerable activity, but the lines are generally small.

Advices from Chicago.—The crop scare is about over for this time and jobbers are now feeling considerably better than they did a few days since, when, according to numerous press dispatches, the vegetation was completely destroyed by hot winds in a very large part of the best agricultural section of the West. Timely rains have fallen, and the outlook for crops has improved very decidedly within three days. The demand for Shelf Hardware shows considerable improvement over previous weeks. House Furnishing Goods are also moving more freely. The country merchants are still purchasing carefully, and sorting up rather than taking in stocks, but orders of this character are much more numerous. Builders' Hardware is in better demand, showing that building improvements are now being more largely made. Orders for fall goods have been placed to a considerable extent the past week for shipment in September, but this business is by no means as large as in previous seasons. Heavy Hardware jobbers report a multiplicity of small orders. They say that the complete figures for July will show a volume of business fully as good as July of last year, which is something they did not anticipate at the beginning of the month.

### Notes on Prices.

Wire Nails.—We have to note considerable inquiry for Wire Nails, with light and decreasing stocks, as almost all the mills remain closed. There is no change in prices. Quotations continue on the basis of \$1.15 for carload lots at mil, a figure which is, however, sometimes ahaded, but none of the manufacturers are willing to quote lower than \$1.10. The New York price for small lots from store is \$1.30 to \$1.35.

Advices from Chicago. - Manufacturers' agents report largely increased inquiries, but buyers are making a atrong fight for lower prices. Factory quotations are \$1.171 to \$1.20, Chicago, but counter offers have been made by buyers which are in some cases con-siderably lower. The manufacturers aiderably lower. are in auch position that if they do not throw away their advantages they will be able to control prices and compel buyers to come to their terms. Few factories are running and stocks are small. The demand from the country trade and from consumers is light, so that large buyers are in no haste to place contracts, and therefore the game of waiting may be prolonged for some time to test the strength of manufact-Small lots from store are selling at \$1.20.

Cut Nails—Business in Cut Nails has been light, with no alteration in prices and no change in the general situation. The Eastern market is represented by the quotation of 95 cents to \$1 for carload lots on dock. The

store price for Cut Nails in New York is \$1.10 to \$1.15.

Advices from Chicago. — The Lake Side Mill has at last been started up, after having been shut down for two months. It is now running single turn on contracts which have accumulated and a steady run is expected from this time forward. New business is not large but orders are coming in reasonably well. The trade now in progress appears to be entirely in the hands of local manufacturers. Factory lots are quoted at 95 cents, Chicago, on 60-cent average. Small lots from stock are unchanged at \$1.15.

Barb Wire.—There is extremely little doing in this article, as is natural at this season, and the situation remains unchanged, without either pressure to sell or eagerness to buy. The market is represented as at our last report by the following prices for Four-Point Galvanized, delivered at the points named: Pittsburgh, \$2.05 to \$2.10; Cleveland, \$2.10 to \$2.15; Cincinnati or Allentown, \$2.25 to \$2.30; Chicago or New York, \$2.25 to \$2.30.

Advices from Chicago.— Manufacturers and jobbers are doing very little in Barb Wire at present. No effort is being made to rush sales. Quotations on Galvanized from stock are continued at \$2.35 to \$2.40, with 10 cents less for carloads.

Berry Clothes Sprinkler.—A description of this Sprinkler was given in our last issue. It is put on the market by the Berry Sprinkler Company, 146 Franklin street, Boston, and is sold to the trade at 25 cents net.

The Lebanon Broiler.—This article, of which a description was given in The Metal Worker, July 28, is put on the market by the Seltzer Specialty Company, Lebanon, Pa. This Broiler is sold at \$9 per dozen list, subject to a discount of 33\frac{1}{3} per cent. to the trade.

Shot.—Owing to a shortness in the supply Pig Lead has advanced, and consequently manufacturers of Shot have issued the following prices to take effect July 27, terms net cash 30 days, or 2 per cent. for cash remitted within 10 days of invoice:

Per bag.
Drop Shot, sizes smaller than B, 25-
Drop Shot, sizes smaller than D, 20
pound bag\$1.15
Drop Shot, sizes smaller than B,
5-pound bag
Drop Shot, B and larger sizes, 25-
pound bag
Drop Shot, B and larger sizes, 5 pound
bag
Buck and Chilled Shot, 25-pound bag, 1.40
" " 5-pouud "35
Dust Shot, 25-pound bag 1.75
" 5-pound "
In lots of 2000 pounds and upward,
taken at one time, a discount of 20 cents
per 100 pounds and 21 per cent. will be

Screws—The Screw manufacturers held a meeting on July 27 and adopted new prices for Screws and goods related to that line by revising discounts and making a new list on Machine Screws, both Brass and Iron. This list will be found on the next page. The following are the discounts on Screws as issued by the American Screw Com-

allowed.

pany:

Patent Gimlet Pointed Wood Screws.

Discount

	Discount.
Iron.	Bright, Flat Head
"	Round Head75
44	Blued, Flat Head, add 5 per cent.
	to net amount of invoice
66	Blued, Round Head
4.6	Felloe, Flat Head
6.6	Pinched Head
6.6	Japauned, Flat Head
4.4	Round Head

Iron, Tinued, Flat Head	65
Round Head " Lacquered, Flat Head	(60)
" Round Head	.60
" Bronzed, Flat Head	60
" Rrose Plated Flat Head	655
" Copper Plated, Flat Head	.60   65
" Round Head	.60
" Niekel Plated, Flat Head, Burnished	.75
nished "Nickel Plated, Round Head, Bur-	31.4
nished. "Silver Plated, Flat Head, Burnished	.50
" Round Head, Dur-	
nished	. 55
" Round Head. " Lacquered, Flat Head	. 75 - 65
6 Konud Head	. ou
" Bronzed, Flat Head	.65 60
" Silver Plated, Flat Head, Bur-	
uished Silver Plated, Round Head, Bur-	.50
nichod	:10
" Nickel Plated, Flat Head, Bur- nished	d 6
" Nickel Plated, Round Head, Bur-	
nished6 Copper, Flat Head	. 65
" Round Head	. 1717
Bronze, Flat Head	. 75
Phosphor Brenze, Flat Head	.60
Round Head	$7^{1}_{2}$
Machine Screws, Bolts, Rivets and M.	
cellaneous Goods.	
Discou	nt.
Machine Screws, Irou, Flat Head	nt. .45
Machine Screws, Irou, Flat Head Iron, Round Head	nt. .45 .40
Discou Machine Screws, Irou, Flat Head Fron, Round Head Fillister Head Brass, Flat Head	nt. .45 .40 .35 .45
Machine Screws, Irou, Flat Head Iron, Round Head "Fillister Head Brass, Flat Head "Round Head "Fillister Head "Fillister Head	nt. .45 .40 .35 .45 .40
Discou Machine Screws, Irou, Flat Head Fron, Round Head Filliøter Head Brass, Flat Head Round Head Fillister Head Fillister Head Taps, for Machine Screws Trop Botts, Norway Philadelphia	nt. .45 .40 .35 .45 .40 .35 .65
Machine Screws, Irou, Flat Head	nt. .45 .40 .35 .45 .45 .65 .80 .85
Machine Screws, Irou, Flat Head	nt. .45 .40 .35 .45 .45 .65 .80 .85
Machine Screws, Irou, Flat Head	nt45 .40 .35 .45 .45 .85 .50 .85 .75 .70
Discours Machine Screws, Iron, Flat Head	nt45 .40 .35 .45 .45 .85 .85 .85 .70 .70
Discou Machine Screws, Irou, Flat Head  Fillister Head  Fillister Head  Round Head  Fillister Head  Fillister Head  Fillister Head  Taps, for Machine Screws.  Tire Bolts, Norway Philadelphia  Eagle Philadelphia Bay State.  Sleigh Shoe Bolts.  Stove Bolts, Flat Head  Flat Head, Annealed  Round Head  Stove Rods  Sluk Bolts	nt45 .40 .35 .40 .35 .40 .35 .65 .85 .70 .70 .70
Discou Machine Screws, Irou, Flat Head  Fron, Round Head  Fillister Head  Round Head  Round Head  Fillister Head  Taps, for Machine Screws  Tire Bolts, Norway Philadelphia  Eagle Philadelphia  Bay State  Sleigh Shoe Bolts  Stove Bolts, Flat Head  Flat Head, Annealed  Round Head  Stove Rods  Siuk Bolts  Pointal Wires	nt45 .40 .35 .40 .35 .60 .85 .70 .70 .70 .65
Discou Machine Screws, Irou, Flat Head  Fron, Round Head  Fillister Head  Round Head  Fallister Head  Fillister Head  Fillister Head  Taps, for Machine Screws  Tire Bolts, Norway Philadelphia  Eagle Philadelphia  Bay State  Sleigh Shoe Bolts  Stove Bolts, Flat Head  Flat Head, Annealed  Round Head  Stove Rods  Siuk Bolts  Pointed Wires  Tapped Nuts  Norway Rivets  Crdinary in bulk 6) and	nt45 .40 .35 .45 .65 .85 .75 .70 .70 .70 .70 .50 .10
Discou Machine Screws, Irou, Flat Head  Fron, Round Head  Fillister Head  Round Head  Round Head  Fillister Head  Taps, for Machine Screws  Tire Bolts, Norway Philadelphia  Eagle Philadelphia  Bay State  Sleigh Shoe Bolts  Stove Bolts, Flat Head  Flat Head, Annealed  Round Head  Stove Rods  Siuk Bolts  Pointed Wires  Tapped Nuts  Norway RivetsOrdinary, in bulk 65 and Coopers, in bulk	nt45 .40 .35 .45 .45 .65 .85 .75 .70 .70 .70 .70 .10 10
Discou Machine Screws, Irou, Flat Head  Fillister Head  Fillister Head  Round Head  Fillister Head  Fillister Head  Fillister Head  Fillister Head  Taps, for Machine Screws.  Tire Bolts, Norway Philadelphia  Eagle Philadelphia  Bay State  Sleigh Shoe Bolts.  Stove Bolts, Flat Head  Flat Head, Annealed  Round Head  Stove Rods  Siuk Bolts  Pointed Wires  Tapped Nuts  Norway Rivets-Ordinary,in bulk 65 and Coopers, in bulk	nt45 .40 .35 .45 .40 .35 .65 .80 .70 .70 .70 .65 .10 10 10
Discou Machine Screws, Irou, Flat Head Iron, Round Head Filliater Head Brass, Flat Head Falt Head Fillister Head Fillister Head Fillister Head Taps, for Machine Screws Tire Bolts, Norway Philadelphia Bay State Sleigh Shoe Bolts Stove Bolts, Flat Head Flat Head, Annealed Round Head Stove Rods Sluk Bolts Pointed Wires Tapped Nuts Norway Rivets-Ordinary, in bulk 65 and Coopers, in bulk 65 and Thousand, in papers 65 and Block and Carriage, in papers of 100,	10. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Discou Machine Screws, Irou, Flat Head Iron, Round Head Filliater Head Brass, Flat Head Falt Head Fillister Head Fillister Head Fillister Head Taps, for Machine Screws Tire Bolts, Norway Philadelphia Bay State Sleigh Shoe Bolts Stove Bolts, Flat Head Flat Head, Annealed Round Head Stove Rods Sluk Bolts Pointed Wires Tapped Nuts Norway Rivets-Ordinary, in bulk 65 and Coopers, in bulk 65 and Thousand, in papers 65 and Block and Carriage, in papers of 100,	10. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Discou Machine Screws, Irou, Flat Head Iron, Round Head Filliater Head Brass, Flat Head Falt Head Fillister Head Fillister Head Fillister Head Taps, for Machine Screws Tire Bolts, Norway Philadelphia Bay State Sleigh Shoe Bolts Stove Bolts, Flat Head Flat Head, Annealed Round Head Stove Rods Sluk Bolts Pointed Wires Tapped Nuts Norway Rivets-Ordinary, in bulk 65 and Coopers, in bulk 65 and Thousand, in papers 65 and Block and Carriage, in papers of 100,	10. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Machine Screws, Irou, Flat Head	mt45 .40 .35 .45 .45 .40 .35 .45 .55 .75 .70 .70 .65 .41 10 11 10 11 10 11 10 11 10 11 10 11 10 11 10
Machine Screws, Irou, Flat Head.  Fron, Round Head.  Fillister Head.  Result Head.  Round Head.  Fillister Head.  Fillister Head.  Fillister Head.  Fillister Head.  Taps, for Machine Screws.  Tire Bolts, Norway Philadelphia.  Eagle Philadelphia.  Bay State.  Sleigh Shoe Bolts.  Stove Bolts, Flat Head.  Flat Head, Annealed.  Round Head.  Stove Rods.  Sluk Bolts.  Pointed Wires.  Tapped Nuts.  Norway Rivets-Ordinary, in bulk 65 and Coopers, in bulk.  65 and Thousand, in papers.  Block and Carriage, in papers of 100, 65 and Block and Carriage, in papers of 100, 65 and Block and Carriage, in papers of 100, 65 and Block and Carriage, in papers of 100, 65 and Hame.  Belt, with Burrs.  65 and Bay State Rivets, 34 cent net per pound than Norway Rivets.  Burs for Rivets.  65 and	mt45 .40 .35 .45 .45 .40 .35 .65 .70 .70 .70 .110 l10 l110 l110 less l185
Machine Screws, Irou, Flat Head	mt45 .40 .35 .45 .45 .85 .75 .70 .70 .70 .11 10 l 10 l 10 l 10 l 10 l 110 less
Machine Screws, Irou, Flat Head	nt45 .40 .35 .40 .35 .50 .70 .70 .70 .65 .65 .10 110 110 110 110 110 110 110 110 110
Discou Machine Screws, Irou, Flat Head  Fron, Round Head  Fillister Head  Round Head  Round Head  Fillister Head  Round Head  Fillister Head  Taps, for Machine Screws.  Tire Bolts, Norway Philadelphia  Eagle Philadelphia  Bay State  Sleigh Shoe Bolts  Stove Bolts, Flat Head  Flat Head, Annealed  Round Head  Stove Rods  Siuk Bolts  Pointed Wires  Tapped Nuts  Norway RivetsOrdinary, in bulk 65 and Coopers, in bulk	nt45 .40 .35 .40 .35 .80 .85 .70 .70 .70 .110 .110 .110 .110 .110 .85 .85 .85 .85 .85 .85 .85
Machine Screws, Iron, Flat Head.  Fron, Round Head.  Fillister Head.  Round Head.  Round Head.  Fillister Head.  Round Head.  Fillister Head.  Taps, for Machine Screws.  Tire Bolts, Norway Philadelphia.  Eagle Philadelphia  Bay State.  Sleigh Shoe Bolts.  Stove Bolts, Flat Head.  Flat Head, Annealed.  Round Head.  Stove Rods.  Siuk Bolts.  Pointed Wires.  Tapped Nuts.  Norway RivetsOrdinary, in bulk 65 and Coopers, in bulk.  65 and Thousand, in bulk.  65 and Block and Carriage, in papers of 100,  Hame.  65 and  Belt, with Burrs.  Belt, with Burrs.  Belt, with Burrs.  Belt, with Burrs.  Bay State Rivets, 34 cent net per pound than Norway Rivets.  Burrs, for Rivets.  Burrs, for Rivets.  Coach Screws.  Hand Rail Screws.  Miscellaneous Wire Nails, Steel, 1, 5 and 10 pound packages.	nt45 .40 .35 .40 .35 .80 .85 .85 .85 .85 .85 .85 .85
Machine Screws, Irou, Flat Head.  Iron, Round Head.  Fillister Head.  Round Head.  Fillister Head.  Round Head.  Fillister Head.  Fillister Head.  Taps, for Machine Screws.  Tire Bolts, Norway Philadelphia.  Eagle Philadelphia.  Bay State.  Sleigh Shoe Bolts.  Stove Bolts, Flat Head.  Flat Head, Annealed.  Round Head.  Stove Rods.  Sluk Bolts.  Pointed Wires.  Tapped Nuts.  Norway RivetsOrdinary, in bulk 65 and Coopers, in bulk.  65 and Thousand, in papers.  65 and Block and Carriage, in papers of 100,  65 aud.  Hame.  65 and  Belt, with Burrs.  65 and  Belt, with Burrs.  65 and  Surrs, for Rivets,  Coach Screws.  Hand Rail Screws.  Miscellaneous Wire Nails, Steel, 1, 5  and 10 pound packages.  25 and 50 pound packages and 100-  pound kegs.  Glass—The condition of the Gl	nt45 .40 .45 .45 .45 .45 .45 .45 .85 .75 .70 .70 .65 .51 .51 .51 .51 .51 .51 .51 .51 .51 .5
Machine Screws, Iron, Flat Head.  Fron, Round Head.  Fillister Head.  Round Head.  Round Head.  Fillister Head.  Round Head.  Fillister Head.  Taps, for Machine Screws.  Tire Bolts, Norway Philadelphia.  Eagle Philadelphia  Bay State.  Sleigh Shoe Bolts.  Stove Bolts, Flat Head.  Flat Head, Annealed.  Round Head.  Stove Rods.  Siuk Bolts.  Pointed Wires.  Tapped Nuts.  Norway RivetsOrdinary, in bulk 65 and Coopers, in bulk.  65 and Thousand, in bulk.  65 and Block and Carriage, in papers of 100,  Hame.  65 and  Belt, with Burrs.  Belt, with Burrs.  Belt, with Burrs.  Belt, with Burrs.  Bay State Rivets, 34 cent net per pound than Norway Rivets.  Burrs, for Rivets.  Burrs, for Rivets.  Coach Screws.  Hand Rail Screws.  Miscellaneous Wire Nails, Steel, 1, 5 and 10 pound packages.	nt45 .40 .45 .40 .45 .40 .45 .40 .45 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .45 .40 .40 .40 .40 .40 .40 .40 .40 .40 .40

Glass—The condition of the Glass market as reported in our last issue remains practically unchanged. The demand for Glass is light and little is being done to stimulate business. While 80 and 20 per cent. discount is the quoted price on American Glass, at factory in carlots, it is understood that obtainable prices are represented by discounts of from 85 to 85 and 5 per cent. Imported Window Glass is quoted at 80 and 10 per cent. discount in any quantity. Plate Glass is sold at from 70 to 70 and 10 per cent. discount from Eastern list, according to size.

Old Metals.—There is only a very moderate demand for Old Metals, yet the market shows a firmer tone and prices are quite steady. The following quotations represent about the rates now paid by New York dealers:

now paid by Mew Tolk desicts.			
Heavy Copper	Ъ	7	#
Light and Tinned Copper	ľb	6%	
Heavy Brass#	Þ	5	¢
Light Brass	ю	4	¢
Lead	Ъ	3	¢
Tea Lead	Ъ	234	¢
Zinc*	Ъ	21/4	¢
No. 1 Pewter	D	12	¢
No. 2 Pewter	P	6	¢

Wrought Scrap Iron. # gross ton \$8 @ \$8.50 Heavy Cast Scrap. # gross ton 7 @ 7.50 Stove Plate Scrap. # gross ton 4.00 Burnt Iron. # gross ton 2.75
Old Rags, Paper, &c.—A quiet mar- ket is reported, with prices at about
their former level. Dealers' prices,
Now York dellares one of follows:

f	ollo	W.S	:
Ъ	31/4	0	316¢
tb	2	(0)	21/4
Ď			2/10
Ъ	1	@	11/4
Ъ	214	Œ,	2344
D	$1_{24}^{8}$	(4)	21/4
	11/8	(0)	11.0
	_	_	8/4 6
			11/4
	1,		
	29	((1)	2-5¢
	8/	a	
	74	(d)	
IO Th	28	ų,	360
II.			82.0
н.			I.C
Th.			46.0
th.			1760
			I ¢
		a	
			8/4¢
		a	2/40
-		( (a)	21/0
	11/6	(0)	184€
	3/4	@	76¢
1			
		b b b b b b b b b b b b b b b b b b b	10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Old Rubber.—Dealers' purchasing prices, New York delivery, are as follows:

Car Springs, ton lots, # D	0	<b>\$0.03</b> ½
Ruhher Shoes, carloads, de- livered at factory, # 1b		.04%
Rubber shoes, less than carloads, # fb	a	.04
Large Hose, # ton	0	15.00
White Wringer Rolls, # 1b White Syringes, # 1b		$03\frac{8}{4}$

#### CONTENTS.

Editorials: PAG	Æ.
The Question of Guarantees	41
A Reform Needed	41
Still Another Evil	41
Tin Plate Production	
Flower Stand Fountain	42
Pressure on Cylinder	42
Wants to Build a Fruit Drief	42
Flower Stand Fountain.  Pressure on Cylinder Wants to Build a Fruit Drier Lifting Power of Pumps.  Setting Water Motors Heating Water for Bathroom. Illus. Comparative Cost of Fuels	42
Heating Water for Bathroom. Illus	43
Comparative Cost of Fuels	43 44
Progress in Garvanizing. Industricour.	71
Heating on Boiler Level. Illustrated How Shall Radier be Vented?	46
How Shall Radiators be Vented?	46
The Monash Automatic Steam Mil	46
Valve, Illustrated	47
	47
Plumoing and Gas Fitting	
Monmouth County, N. J., Plumbers	48 48
Novant Plumbers' Field Day	48
The Bantam Game On Breater Plansons and Gas Fitting Monmouth County, N. J., Plumbers The Puritan Wash Down Closet. Ilius. Newark Plumbers' Field Day Water Msin Tapping Machine. Illus.	49
	50
The Hub Roof Flange. Illustrated	50 50
Trans and Venta Enterprise Gas Radiators. Illustrated	51
Economy Revolving Hollow Bar Grate.	-
(I)nstrated	52
Waffle Iron Decision	52
Rooming and Cornice— The Piqua Metallic Lath. Illustrated.	53
Flashings	53
Flashings Correction	53
American Tin Plate Production for Quarter, March 31, 1894	54
Scrap	56
Trade Notes	56
The Retail Store-	
Combined Wrench and Screw Driver.	57
illustrated . Gasoline Stove Ware Adjuster. Illus .	57
Bolgland's New Hot Air Perfection Gas	
Trons, Illustrated The Darling Ice Pick. Illustrated	57 57
Heating and Plumbing—New Work and	٠,
Heating and Plumbing-New Work and Contracts	58
Cham (Day )o Motor—	50
The Chicago Stove Trade	59 59
The Chicago Stove Trade S. II. Sexton & Son The Rock Island Stove Company	59
Odd Plates New Leader Stoves	59
New Leader Stoves	60
Trade Report- The Iron Market	61
Metal Market	61
Metal Market Chicago Report Condition of the Hardware Trade	62
Condition of the Hardware Trade	62 62
Notes on Prices Metal and Miscellaneous Prices	64
Labor Exchange-	
Help Wanted	68
Situations Wanted	66

# Metal and Miscellaneous Prices.

### CHICAGO, AUGUST 2, 1894.

TI.	
Tin— Straits pigs21366	E
Imported Tin Plates-	
Charcoal Plates.—Bright.	١
Suaranteed Plates command special prices, according to quality.	P
Per box.	E
IC, 10 x 14	H
IC, 14 x 20 6 6.75 IC, 20 x 28 6 13.50	Ą
Oalland and IX, 10 x 14	S
IC, 14 x 20, 6 6.75 IC, 20 x 28, 6 13.50 Oalland and IX, 10 x 14, 6 8.75 MelynGrade) IX, 12 x 12, 6 8.75	1
1X, 14 X 20	i w
DC, 1216 x 17 63 6.50 DX, 1216 x 17 64 8.50	
$DX, 12 \times 17, \dots, 68.50$ $DX, 10 \times 14, \dots, 68.35$	
DC, 12% x 17 @ 6.50 DX, 12% x 17 @ 8.50 [IC, 10 x 14 @ 6.36 1C, 12 x 12 & 6.35 Allaway Grade, [IC, 14 x 20 & 6.35 [IC, 20 x 28 @ 12.70 IX, 14 x 20 & 7.85 IX, 20 x 28 @ 15.20	E
Allaway Grade, IC. 14 x 20	К
Allaway Grade, IC, 14 x 20	•
$(1X, 20 \times 28, \dots @ 15.20)$	F
Cohe Plates—Bright. Per box.	
Per box.	J
##DDI COLO-1C. 10x14.14x20	l
IO. 14x20, 100 b 6 5.50	п
10 x 20 66 8.50	E
20 x 28@11.50 1X, 10x 14, 14 x 20@ 7.25	l
B.V. Grade. IC,10x14, 14x20.6.75@ 5.85	J
Charcoal Plates.—Terne.	8
Guaranteed Plates command special	8
Manuel and Dean Grades.—	
Guaranteed Flates command special prices, according to quality.  Manuel and Dean Grades.—  10. 14 x 20	S
	S
Worcester Brand and equal	N
IC. 14 x 20 6 00 @ IC, 20 x 2812 (0 @	l
IX. 14 x 20 7.10 @	l
20 x 28, 16.00 @	T
Tin Boiler Plates.	T
Per box of Per box of 100 sheets.	ı
X, 14 x 28\$13.00 \$13.00	T
X, 14 x 28\$13.00 \$13.00 XX, 14 x 2814.50 14.50 X, 14 x 3114.50 16.80	T
AA, 14 X 01 10.00 17.00	c
Per bex of 56 sheets.	
¥ 14 + 84 90 80 16 80	M
XX, 14 x 56	W
X, 14 x 60 31.50 17.66 XX, 14 x 60 35.50 20.90	ĸ
American Tin Plates	G
Charcoal Plates.—Bright,	1
	M
Florence.— 1C, 10 x 14, 12 x 12, 14 x 20\$6.76 IX, 10 x 14, 12 x 12, 14 x 20 8.50	ĺ
Palma	0
IO, 10 x 14, 12 x 12, 14 x 20\$7.00	١٧
IO, 10 x 14, 12 x 12, 14 x 20. \$7.00 IX, 10 x 14, 12 x 12, 14 x 20. 9.00 Each extra cross \$2.00 and 20 x 28	
Each extra cross \$2.00 and 20 x 28 double these prices.	
Brilliant, Tissue Packed, IC, 14 x 20.89, 25	н
Royal extra. IC, 14 x 20	
Boyal extra IC, 14 x 20.       7.25         Merion, IC, 14 x 20.       7.00         Almond, IC, 14 x 20.       6.50         Mint, IC, 14 x 20.       6.25	
Mint, IC, 14 x 20 6.25	ł

	Cilicado, Act	
	Coke Plates.—Bright.	
	Elwood.—IC, 14 x 20\$6.00 IC, 20 x 2812.50	
	Pantna Plates	
	Fulm, 1C, 20 x 28	
	Falm, 1X, 20 x 28	
	Empire, IX, 20 x 28	
	1X, 20 x 28	
	Alaska (heavily coated), IC, 20x28@\$14.50 Alaska 1V 20x28	
i	Palm, 1C, 20 x 28.	
1		
i	IC, 14 x 20. \$6,00 IC, 20 x 28. 12.00	
į	Elwood:	
	IC, 20 x 28	į
	Kenwood: 1C, 20 x 28\$11,50 Furniston:	
	10° 90 × 98 \$11.00	
	Juno: 1C, 14 x 20. \$5.75 1C, 20 x 28. 11.50 Illinois, Old Method: 1C, 20 x 28. \$17.00	
	Illinois, Old Method: IC, 20 x 28	
	Jessie :	
	Scott's Extra Conted, Stamped and	
	Scott's Extra Coated, Stamped and	
	Resquared, IX, 14 x 2011.00 Scott's Extra Conted, Stamped and	
	IC. 20 x 28. \$12.50 Jessie: 1C. 20 x 28. \$12.60 Scott's Extra Coated, Stamped and Resquared, IC, 14 x 20. \$0.50 Scott's Extra Coated, Stamped and Resquared, IC, 14 x 20. \$1.00 Scott's Extra Coated, Stamped and Resquared, IX, 14 x 20. \$1.00 Scott's Extra Coated, Stamped and Resquared, IX, 20 x 28. \$1.00 Scott's Extra Coated, Stamped and Resquared, IX, 20 x 28. \$1.00 Neville, Stamped, IC, 14 x 20. \$6.25 " " IX, 14 x 20. \$7.50 " " IX, 20 x 28. \$1.250 Stamped and Resquared). \$1.50 Stamped and Resquared. \$1.50 Stamped and \$1.50 S	
	Resquared, IX, 20 x 28	
	" IX, 14 x 20 7.50	
	1X, 20 x 2816.00	
	(Stamped and Resquared)\$9.60	
	Taylor's Old Style, IC, 20 x 28 (Stamped and Resquared) 19 00	
i	Taylor's Roofing, IC, 14 x 20	I
ı	Taylor's Roofing, IC, 20 x 28	
I	(Stamped and Resquared)16.50 Columbia, IC, 14 x 20 (Stamped)7 25	
	1C, 20 x 28 (Stamped)14.50	
	IC, 20 x 28 (Stamped) 8.75	
	Willow, IC, 14 x 20	
į	Knexall, IC, 14 x 20	
	Globe, IC, 14 x 20	
	Mlaml, IC, 14 x 20 6.00	
	Maple, IC. 14 x 20 (Stamped). 6.76 IC. 20 x 28 (Stamped). 13.50 Willow, IC, 14 x 20. 6.50 IC. 20 x 28. 13.00 Knexall, IC, 14 x 20. 6.25 IC, 20 x 28. 12.50 Globe, IC, 14 x 20. 6.00 IC, 20 x 28. 12.50 Miaml, IC, 14 x 20. 6.00 IC, 20 x 28. 12.50 IC, 12 x 20. 12.50 IC, 14 x 20. 12.50 IC, 20 x 28. 17.50	
	Ckedipped), 10, 20 x 28   17.00	
	IX, 14 x 20	
	IC, 20 x 28	
	H. II. L., Old Style:	
	IX, 11 x 20	
	1C, 20 x 28	

•	2001 2, 1004.
I	Sheet Iron-
1	Black.
1	Common
	Americao Refined.
	Nos. 10 to 16 % b 2 3-10¢ 2 9-10¢
	21 to 24 % % 2 5 10d S 1-10d
	26 and 28 10 2 8-10 8 2 10 4
	27 10 n 2 7-10¢ 3 3-10¢
	Russia, Planished, &c.
1	Potent Planished 20 to A 1014: B 944
1	American   Reflord   Nos. 10 to 16.   Feb 2 3 10 to 2 9 10 to 2 17 to 20.   Feb 2 3 10 to 2 17 to 20.   Feb 2 3 10 to 2 17 to 20.   Feb 2 3 10 to 26 and 28.   Feb 2 5 10 to 27.   Feb 2 7 10 to 27.   Feb 2
	Craig's Polished Sheet Steel8166
1	Juniata or first qualitydis.75@5\$
1	Copper-
ł	Ingot. Lake
1	Casting Brands 9366 @ 10 d
1	Sheet and Bolt. Discount on old list (except advance on cold rolled polished boiler sizes to
	Discount on old list (except advance
1	on cold rolled polished boiler sizes to
	201¢), 40%.
	Copper Bottoms.
	Discount on old list, 25%.  Seamless Brass and Copper Tubes.  Base price, 17%, Chicago, with extras
	Base price 1714 Chicago with extras
1	according to size.
	according to size.  Copper, Bronze and Gilding Tube, 3¢ *
	m additional.
1	Brazed Brass Tubing. (100 lb lots.) (To No. 19 inclusive.)
	(To No. 19 inclusive.) Discount, 40%.
	Discount, 40%. Plain, \$4 inch up to 2 luch
	Plain, 5g inch up to 34 inch
1	Plain, 16 Inch up to 55 Inch
1	Plain, % inch up to % inch
ı	Plate, 4 Inch up to 5-16 inch
ı	Plain, 3-16 inch up to 1/2 inch 1.00
ı	Plate 2 leads up to 3-10 lnCh 1.50
1	Plain, 3 inch and largerSpecial
ł	Plain, smaller than 1/8 inch Special,
1	Bronze and Copper3c advance.
Į	Titte diver Sieet Di dee. (100 to 1006.)
Į	Discount, 40%.
ı	Slab Spelter-
J	Western Spelter 4¢
1	Sheet Zinc-
	600 m casks \$1.75
	800 % easks 4.115
	Leose sheets
	Lead-
i	Bort Pig Lead
	Pipe
	Soft Pig Lead         34c           Bar         4ce           Pipe         55cc           Block Tin Pipe         35c           Sheet         6cc           Block Tin Pipe         35c           Sheet         6cc           Block Tin Pipe         35c           Block Tin Pipe         35c     <
	8heet
	Solder-
	13¢ Extra Wiping
	The price of the many other analities
	The prices of the many other qualities of Solder in the market indicated by pri-
,	vate brands vary according to composi
	tion.

Wrought-Iron Pipe-
15 and under, Plain
114 and under, Galv
11 and over Galv
Boller Tubes, list Oct. 24, 189270&10%
114 and under, Plain 57148 114 and under, Galv 502 114 and over, Plain 67148 115 and over, Galv 5718 116 and over, Galv 702 702 103 Boller Tubes, list Oct. 24, 1892 702 103 Caslug, list Nov. 16, 1892 5248 Inserted Joints Casling, list Nov. 18, 1892
1892. 4716 Steel Boiler Tubes. 2774 Cold Drawn Scamless Steel Tubing603
Cold Drawn Scamless Steel Tubing505
Cast-Iron Soil Pipe-
Cast-Iron Soil-Pipe, Tarred; sizes 2 to 6 inches, inclusive
Other sizesdis 60%
Leader Pipes-
Abendroth's Gniv. Spiral Riveted
Anstin's Corrugated
Ritchia's (Gaiv, Iron only) Cor'd60%
Austin's Spiral Ribbed Pipe60\$
Plain Adjustable Elbows
Austin's Spiral Lock Seam, Gair'd
Furnace Fittings-
Discount from Excelsior Steel Fur-
mace Co. a nat
Steel Roofing-
Perfection
Metallic Shingles—
Merchant & Co.'s Spanish Tiles:
Cushman's
Steel, painted
Drain Pipe-Tile.
Discount from list70\$
Paints, Olls, &c.—
Deedorized Benzine
Brown Brown
" Ground in oil, B. Red n. 644
" Ground in oil, Red " b, 6124
"Ground in oil, Red \ D, 6\4 "Ground in oil, Brown \ D, 5\4 "Ground in oil, Purple \ D, B
"Ground in oil, Red. * b. 646 "Ground in oil, Brown * b. 546 "Ground in oil, Purple * b. 5 Linseed Oil, Boiled, in bols
Ground in eil, Red. * b, 846 Ground in eil, Brown b, 546 Ground in eil, Purple b, 5 Linseed Cil, Beiled, in cols. 688 Linseed Cil, Raw, in bbls. 556 Mineral Paints. 2044
"Ground in oil, Red. * b, 84% "Ground in oil, Brown b b, 84% "Ground in oil, Purple b b, 8 % Linseed Oil, Beiled, in cols. 68% Linseed Oil, Raw, in bbls 55% Mineral Paints 244% Orange Mineral 94% Pure White Lead in Oil 6864
"Ground in oil, Red. # D, 84.6 "Ground in oil, Brown # D, 84.6 "Ground in oil, Purple # D, 5 .6 Linseed Oil, Boiled, in ools. 6.8 Linseed Oil, Raw, in bbls .55.6 Mineral Paints. 29.4 Orange Mineral . 98.4 Dry White Lead in Oil .62.6 Dry White Lead in bbls .55.65.6
"Ground in oil, Red. * b, 846 "Ground in oil, Brown b, 846 "Ground in oil, Purple b, 846 "Inseed Oil, Boiled, in ools 686 Linseed Oil, Raw in bbls 556 Mineral Paints 2646 Orange Mineral 946 Pure White Lead in Oil 6664 Bry White Lead in bbls 556656 Red Lead, American 66654 Red Venetian, English, dry \$1.66651.70
Paints, Olis, &c.—  Deodorized Benzine
Ground in oil, Red. * b. 844  " Ground in oil, Purple * b. 54  " Ground in oil, Purple * b. 54  Linseed Oil, Boiled, in ools 688  Linseed Oil, Raw, in bbls 554  Mineral Paints 244  Pure White Lead in Oil 686  Red Lead, American 686  Red Venetian, English, dry \$1.6631,70  Red Venetian in Oil; assi'd cans, 846  kegs. 744  Sipe's Japan Oil, in bbls. * gal. 346  Sire's Japan Oil, in bbls. * gal. 346
Red Venetian in ell: assi'd cans, 846; kegs. Sipe's Japan Oil, in bbls. F gal. 84 Spirits Turpentine, in bbls. F gal 86
Red Venetian in ell: assi'd cans, 846; kegs. Sipe's Japan Oil, in bbls. F gal. 84 Spirits Turpentine, in bbls. F gal 86
Red Venetian in oil; aast'd cans, 85¢; kegs
Red Venetian in oil; aast'd cans, 85¢; kegs
Red Venetian in ell: assi'd cans, 846; kegs. Sipe's Japan Oil, in bbls. F gal. 84 Spirits Turpentine, in bbls. F gal 86

### NEW YORK, AUGUST 3, 1894

Antimony-

The following quotations are for small lots.

Aluminum-	
No. 1 Aluminum (guaranteed over 98%	6
pare), in rolling ingots	
8mall lots	(
Ton lets	7
No. 1 Alum:num (guaranteed to be over	
98% pure), in logots for remelting :	(
8mali lots. # D. 63¢   100 D lots. # D. 60¢	
Ton lots & B, 65¢	
No. 2 grade (guaranteed to be over 94%	
pure Alemiaum), cast in ingots for re-	
melting: 8mali lots D, 60¢	
100-m lots	
Ton lote ₩ D, 50¢	
Antimony-	-
Antimony- Cookson * D.1036# Hallett's * D. 104	1
Hallett's ₹ b, 10#	1
Brass-	ľ
Planishednet	1
Roll and Sheet25@30\$	"
Brass and Copper Tubes	1
Brazed Brass Tubing-	'
Brown & Sharpe's Gauge the Standard,	١.
	1
tist ! oril 0, 4894. Plain Round To: Per D. 1	Ι.
W in, up to 2 in \$0,35	١,
56-in, up to 56-in	١.
\$6 in, up to \$6 in	1
5 (6-in.un to % in	1
% in up to 5 i 4-in	lá
8-19-in up to 1/1 in	
Smaller than Mein Special	1
8 In. and larger	1
2 in. to 3 in., to No. 19, inclusive, .38)	1
Copper and Bronze Tubing-	١.
84 W h more than brass	1 8

	0
B <b>≰</b>	Conductors-
	Corrugated. Round or Square-
ñ¢ 3¢	Galvanized. 60% Galvanized, Locked Joints. 60%
00	Tin60\$
er	Spiral Riveted-
3¢	Galvanized50%
0.4	Soe also Elbows and Shoes; Eave- Trough Miters: Strainers, Con-
5¢:	ductor.
ė-	Conductor Strainers-See
00	Strainers, Conductor.
50	Copper-
0¢	Copper— Bottoms, Pits and Flats 19¢ % B, net
	Ingot. 10%#
(# (#	Ansonin Grade Arizona10 ¢
•	Ansonia Grade Casting91/4
et ·	Planished net Sheet and Bolt 156 W B. net, basis
n≰	Tubes - See Seamless Brass
B	Tubes,
8	Eave Troughs-
đ.	
CA 4	Lap or Slip Joint, Galvanised50&10% Lap or Slip Joint Terne60%
	Eave-Trough Mitres-
	Lap or Slip Joint list, net
14	Elbows-
25 @ 30%	Plain Adjustable—
3	Tin
25	Crimped Tubing-
	Re-Tinned or Galvanized85%
	Stove-Pipe-
_	Buffale Four-Piece.
	416 5 516 6 7 inch, 80.78 .87 .90 .99 1.20 per dos20 €

Flat Orimp.	8
Tin	
Corrugated.	
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Iron, Sheet— Rlack.	Т
Common R. G. Cleaned	
Nos. 10 to 16. 3 h 2.50 2.806 Nos. 17 to 21 4 h 2.60 2.006 Nos. 22 to 24 5 h 2.70 3.006 Nos. 22 to 24 5 h 2.70 3.006 Nos. 26 nnd 26. 4 h 2.80 3.106 No. 27 8 h 2.90 3.206 No. 28 5 5 5 5 5 5 5 5 5 6 5 6 6 6 6 6 6 6 6	LLL
Russia, Planished, &c. Genuine Russia, second	L L
Patent Planished #D, A, 104: B, 96.5% Craig Polished Sheet Steel B b 8%¢	a
Galvanised. B. B.	P
Nos. 10 to 16. Nos. 17 to 21. Nos. 22 to 24. Nos. 22 to 24. No. 27. No. 27. No. 28. No. 29. No. 30.	8
Lead-	L
American Pig	

Elbows and Shoes-

	Tin Lined Pips
١	Metal, Expanded—
	Manufacturers' list No. 6.         Los           Lathing         10s           Fencing, Painted Sheets         20s           Netting, Painted Sheets         20s           Door Mata, Galvanized         25s           Window Guards, Paneled         16s           Tree Guards, Paneled         16s
	Mitres, Eave-Trough—Res Eave-Trough Mitres.
ı	Paints, Oils &c.—
	Lead, Amn. White, in oil 6% 6 7% Lead, Red, bbis. and % bbis 6% 6 7 76 Lead, Red, kegs 6% 6 7 76 Ceher, American 1 6 1% 6 2% Linseed Oil:  Raw, ** gal
ı	dpirits Turpentine: In bbls
	Putty: In barrels and 1/2 bbls
	800fing Material, &c.: Asphaltum, Trialdad, Refined, # ton
	Coal Tar Felt, 8 Piy, \$ roll 108 sq. ft. 81.86
1	Boofing Pitch. 9 boi \$2,25

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, August 11, 1894.

DAVID WILLIAMS, - PUBLISHER

#### BUSINESS OFFICES:

NEW YORK	
PHILADELPH	IA220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBURGH	Room 509 Hamilton Building.
CHICAGO	59 Dearborn Street, cor. Randolph.
CINCINNATI.	Rooms 22-24 Pickering Building.
ST, LOUIS	Bank of Commerce Building.

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

#### Dignity.

The ability to control men falls little short of genius; it is an art that few can acquire. In just what it consists would be difficult to state, but certain it is that success in the management of men can exist only when there is respect upon the part of the men for their superior. Such respect can be gained and fostered only by the maintenance of a certain dignity that absolutely forbids stepping over the line into familiarity and yet withal does not repel. Some men while possessing all the other requisites of success seem to lack in just this one particular: They compromise themselves with their men, losing to a certain degree their respect and consequently breaking down that simple barrier. that unwritten law of intercourse that should serve to separate them. The dignified man need not walk erect and stiff necked, his countenance must not of necessity be always austere or his sentences short and sharp, with no humor in them. But he certainly must not descend into frivelity; he must in all his intercourse with his men say by his very acts and words: "Thus far shalt thou go but no fur-

#### Familiarity.

The descent from dignity is always into familiarity, and although it may not in all instances breed contempt it nevertbeless is certain to weaken the moral influence of the one who practices it. Although familiarity frequently appears to be a factor in popularity, it actually is not, and has no part in that true and proper popularity that is enjoyed by the few because they command respect and reverence. Many a man's downfa!l as a successful manager has dated from the time that, for some cause or other, he sought to be popular. He has doubtless endeavored to become so by a certain intimacy, a familiar slapping on the

back, a free conversation on an irrelevant subject. He has become too well liked from low rather than high motives, from expectation of favors or because unjustifiable favors have been granted. Even unintentionally the man sometimes places himself in an improper relation to the employer. Thus, a certain young timekeeper. out of the kindness of his heart, by extra work, made up his pay roll so as to pay off the day before Christmas, although wages were not due until Christmas Day, which, being a holiday, their pay day should go over to the day after. The men in appreciation made up a subscription which was invested in a fine meerschaum pipe and presented to him. He accepted it, but in so doing and by consequent intimacy with the men so compromised himself that it was soon deemed advisable by the management to find a substitute. In this is the lesson; familiarity must be avoided, dignity cherished and every effort made to secure the sincere respect of the men rather than the hollow popularity which is for the day and then, like a bubble, bursts and is gone forever.

#### Transportation Expedients.

Numerous instances are coming to light of the expedients to which Western business men were obliged to resort while the Debs embargo on railroad transportation was in full force and effect. Wherever considerable loss would have been sustained by a failure to deliver goods within a reasonable time, recourse was had to the rivers or to the few canals still to be found in some sections, or to the primitive method of teaming. A great deal of agricultural machinery was hauled long distances by wagen, because the strike occurred just when harvesting had begun, and there are always plenty of farmers who will not purchase machinery until they see that it is absolutely needed. These who paid the freight on these team delivered goods are in a position to draw comparisons which are strongly in favor of railroad transportation. Rivers and canals also proved poor substitutes for the steel roadway.

We are in receipt of a circular from H. M. Sanders, 227 North Calvert street, Baltimore, Md., stating that the Sanders evening school for sheet metal workers will open on the first Monday evening in September. Three lessons will be given weekly, on Monday, Wednesday and Friday evenings, from 7 to 9 o'clock, the pupil having opportunity for study and practice during the remainder of the week, the price being \$1 per lesson. The object of the school is to furnish a thorough course of instruction in the art of pattern development, instruction being given on the

intersecting line system, the circular or curved line system and the triangulation system. In addition to this, instruction in geometric, isometric and architectural drawing will be given.

#### Exhausting Smoke from Forges.

Improvement in the method of removing the smoke from the numerous forge fires in large smith shops has kept pace with other innovations, so that to-day we may note in many establishments the old time chimney connection from each forge completely removed and in its place a carefully planned system of exhausting the smoke by mechanical means. Advancement in this line has been rapid in the past few years until such arrangement now forms almost an inherent part of any complete equipment.

The inconvenience of the damp chimney flue that would not draw and the common difficulty of getting the smoke to move in the proper direction-i. e., up the pipe—while a fire was being started have, of course, been most important factors in bringing about the change. In the most recent arrangements as introduced in large railroad smith shops a single or double exhausting fan has been placed overhead on the roof trusses near the center of the building. From the inlet of each fan pipes are extended horizontally until they connect to the upright pipes from the forge hoods. These hoods, in some of the latest equipments, have been made double-a cone within a coneseparated some 1 or 2 inches and so arranged-with only a small hole at the apex of the inner cone—that considerable suction is created around the annular ring at the bases of the cones. The smoke, particularly at the time of starting up, is thereby prevented from curling down around the lower edge of the hood and thence escaping to the room with objectionable results. Obviously the hoods may be pyramidical as well as conical.

Such hoods can be readily counterbalanced and the pipe above arranged to telescope so that they may slide upward. Each pipe should be provided with a blast gate or damper that may be closed when the forge is not in use, and waste of power thereby avoided. The ordinary cased fan of the paddle type, as commenly employed for this work, is generally arranged to discharge directly upward through the roof, and is driven at such speed as to deliver smoke and air to rough the outlet pipe at a velocity of about 4000 feet per minute.

Of course the same or a similar ar-

Of course the same or a similar arrangement is applicable to all classes of open fires, in fact to all producers of smoke or objectionable gaseous fumes, and the product may be discharged at a distant point where its presence will not be disturbing.

# THE LETTER BOX.

Disease Germs and Ventilation.

From A. H. D., Minersville, Pa --There are several questions under discussion that are agitating this and other communities which I would like to have you give some information upon. In ventilating a crowded building by taking the foul air out of the rooms directly under all the floors and over all the ceilings (between the floors and eeilings) by down draft from the rooms, is there any danger of lodging the germs of disease on the rough lumber and the back of the plaster? If so, how is it possible to clean out these germ; of disease without tearing out the floors and ceilings? Would such a system of ventilation meet with general medical approval?

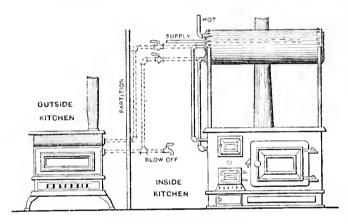
Note. -- It is a simple matter to answer our correspondent's first inquiry. If disease germs are floating in the air of a crowded room and the atmosphere is exhausted through rough plaster or timber partitions, such as exist between the floors and ceilings of a building, there is little doubt but that a great many of the disease germs will be arrested. One thing that should be borne in mind, however, is that the partitions of a building are usually absolutely dry and dust particles and all infinitesimal motes, such as disease germs, would not find such ready lodgment on a dry as on a moist surface. We do not know how to clean out these channels, p-o. vided they be polluted with disease laden air. It is possible some system of heroic disinfection, such as passing antiseptic gases or fumes through the passages, would kill the germs. We do not know what medical opinion would be on this general subject. There are certain phases of it, however, that may be considered simply from a commonsense standpoint. The ordinary ventilating flues, rising vertically from the top or bottom of rooms, are often of brick, which would collect disease germs in the same way as plaster and wood; therefore the between-floor ventilation is not in itself a dangerous practice. Another thing to think of is-so long as the current of air is outward the germs will not travel against it and there is no danger of them getting into the house. A disease germ is not a full grown animal with powers of locomotion and intelligence, but is an infinitesimal creation of which comparatively little is known at the present time. We are aware that under certain conditions they spread and propagate, but do not think the cholera germ, for instance, landed on a dry pine board, would create a colony inside of a century. If our correspondent looks

too minutely into the hygienic arrangement of dwelling houses and other buildings, he will discover a great many causes for alarm. All the furnishings on the walls of the rooms are receptacles for disease germs, while the upholstery of the seats in a hall are far better accumulators of disease germs than the partition flues he has in mind. Disease germs located on chair covers are subjected to more warmth and a moister atmosphere than they would be in the flues. The very dust of the floo: becomes laden with these dangerous atoms, and he must also bear the fact in mind that the ordinary indirect system of heating permits the accumulation of dust and dangerous parasites of all sorts,

to connect the pipes from the open side of the tee with the range in the outside kitchen. The two stops mentioned should be placed as near the boiler as convenient. A draw off cock must be placed near the water back in the outer range for draining the water back and pipes to prevent freezing in winter. To have the circulation free care should be taken that no traps are formed in either pipe.

### "Where Ignorance Is Bliss."

From A Tinner, New York State.— I would like to ask why so many foremen of tin shops dislike to be openly shown some new and advantageous way of producing patterns. I came across



Connecting Summer Range.

living and dead, upon the indirect radiators or in the drum of a furnace during the summer, ready for charging into the house whenever the fire is lighted. This is an interesting topic that our correspondent has brought forward and we shall be glad to have it discussed. We do not feel that the matter can be decided off-hand as to what amount of danger there is in the system of ventilation he refers to.

#### Connecting Summer Range.

From L. H., Philudelphia — Will you please describe a method for connecting the outside range with the boiler located over the range in the inner kitchen, as shown in the accompanying sketch? Two stops and wastes are to be used on the pipe to outside atove to shut off the water in winter. Will the stop be required on the inside range pipe to prevent circulation when the outside stove is being used? The boiler employed is of the horizontal type and lies over the top of the inner range.

Answer.—By using a tee instead of an elbow on each of the pipes that runs from the boiler to the water back on the inner range, it will be a simple matter

one in a city nearby who has been boss of the shop many years and, like many others I have met, bas an idea that he knows it all, and displayed his littleness and ignorance by refusing to look at a device for producing patterns that I was foolish enough to think would interest him, and astonished me with the declaration that he knew all about the device I wished to show him, although he had never seen it. I think a man like that would prevent The Metal Worker from reaching the boys in the shop if he could, but would read it on the sly and try to make the men under him believe that the information there gained was original with himself. Foremen of city shops have an idea that anything promul gated in a small town cannot be of interest to them. I think there is where many original and useful ideas come from. Some of the country mechanics have good heads and all the good heads are not carried on the shoulders of city mechanics. Country boys have more time to study and to solve the different problems which The Metal Worker produces so completely. I have an apprentice who would not be puzzled in the least to draw the few lines to get that cold air box that aeemed to have bothered "A. L. M." and his friends in the big city of New York; and, no doubt, foremen of the kind mentioned would be able to do it without looking. I am. inclined to believe that the proper way to approach these high and mighty men is to do so in the dark, so that no one will see them receive the instruction that they certainly need.

#### Wind.

From GEO. M. BARR, Pittsburgh, Pa. -Once upon a time, not long ago, a gentleman informed me that he had a furnace in his house which was about the poorest apology for a heater he had ever seen. Its sole ambition seemed to be to keep the cellar at a torrid temperature, and in this it succeeded beautifully. Visitors were always greatly surprised when told there was a warm air furnace in operation in the house, but a trip to the cellar never failed to remove any doubt. In three months' time this insatiable monster consumed 31 tons authracite coal and \$32 worth of natural gas, and all the owner had ever received in return was a piping hot cellar and the fuel bills. Various mechanics had advised in the matter, one claiming the warm air pipes were too small and should be replaced by larger ones. His suggestion would probably have been acted upon had not another fellow declared the pipes were too large, presenting to the cool cellar air so much surface as to cause the warm air to become chilled before it reached its destination. The pipes were 8 and 9 inches in diameter. As we parted the gentleman casually observed that he wouldn't care if the whole ap paratus, including the man who set it up, was in a certain locality where heat is popularly supposed to be a drug on the market. He requested me to go out to his place, and I went, knowing there was something wrong with the cold air pipe, which I decided to look into and render a bill for so much per look. But no cold air pipe met my gaze. There wasn't any. Excepting leakage, reduced to a minimum by tightly fitting casing, there was actually no fresh air supply to that furnace, nor had any provision ever been made for

Two thirds of all the trouble in unsatisfactory furnace jobs which I have investigated were traced to some defect in the cold air supply. The average tinner generally overlooks this most important connection, usually devoting his whole attention to the warm air pipes, location of regulators, &c. I saw a furnace last winter carrying an aggregate of 585 square inches in area of warm air pipes, and the cold air pipe was 12 inches in diameter, equal to 113 square inches. Even the plasterers working on the building predicted disaster for that heating contractor.

I remember an instance in San Francisco, several years ago, when I was re quested to look at a furnace in a large city residence, and if possible discover why it failed to heat the house. The furnace was a large one, fully capable of carrying the 12 lines of pipc connected to it, provided the cold air supply was sufficient, which I decided was not the case. With a stiff breeze blowing from the right direction I found that not even a gentle zephyr was wafted through the cold air pipe, which was carried under cellar floor to a pit beneath the heater. I had the cement taken up over this duct, revealing a wooden box, the cover of which was removed, and there about the center was the cause of all the trouble and considerable profaulty. The intelligent workmen who had cemented the cellar had dumped all the surplus sand into the box, completely filling it up at this

point. While we were getting down to the supply pipe the Chinaman who had charge of the furnace made his appearance and I asked his opinion of the

"O gee cli," be answered; "him no goodee. No likee. Pokey, pokey; skakey, shakey; alleday, alle timee. No make 'm lite. You sabbe fixe? No can do it. One man he come one day fix 'im pipe. To mollow nudder man come fixee alle samee first time. He alle samce bum flunace.'

Two weeks after our conversation above I met John, and he smilingly velled out:

"Heap good! Heap good! You alle

samce sabbe; you bette.'

A furnace we put in two winters ago was reported to us shortly afterward as not giving sufficient heat, the party claiming that with a good fire not more than one room could be heated at the same time. I went up to see about it and found the owner at home. On our way to the cellar he informed me that he alone attended to the heater, as he had been around furnaces consider ably, and never permitted the women folks to meddle with it. He was not exactly sure what the difficulty was, but had an idea, which I allowed him to retain, since it was his, and as at that moment we reached the furnace room and I saw the slide in the cold air hox was tightly closed. I called his attention to it, and he said: "Oh, yea; I close that. The house is cold enough without permitting more cold air to enter through that pipe. I can't understand why it was put there. I keep the slide closed all the time.'

Well, not having an axe or acything handy, I could not kill him, so I opened the cold air damper, filling the house full of warm air instead of cold, to his complete astonishment, and then I proceeded to fill him full of cold air, oxygen, carbonic acid, sulphuretted hydrogen, burnt out fire pots for the want of some of the above, &c, and to this day, whenever we meet, he gazes at me with admiration and awe. I went to see a furnace some time ago which had given the owner considerable trouble. It was a small affair, supplying three registers through as many 8 inch pipes. The cold air pipe, 12 inches in diameter, dropped down from the joists and disappeared in the ground alongside the furnace. The owner said that was all right as there was an air well under there, which he considered was the proper thing to considered was the proper have. A careful investigation failed to discover anything wrong with the pipes above ground, so I concluded to examine the pit under furnace. Removing cold air pipe I found, Instead of a well as he called it, that the furnace had been set on several bricks scattered about under the base ring, and a shallow channel scraped out under the cold air pipe. The whole had been covered over with cement, which gave the heater the appearance of resting on a solid foundation or the wall of a pit. There was a space just 2 x 12 inches under base ring, in the channel, for the air to pass into furnace, and it did not take long to convince the owner that the amount of air that would pass through a pipe with a cross sectional area of 113 square inches would have a hard tussel getting through an opening 2 x 12 inches.

Two-thirds of the trouble with fur-

naces, as before stated, I find in the cold air supply. The other third-and sometimes it seems as though there were several thirds—is due to other causes. The most remarkable plan of

construction that I ever ran across was met with ln the northern part of this State on a church building of 50,000 cubic feet volume. The church had never been heated satisfactorily, or any other way, in fact, and a new apparatus was to be contracted for, and that is what brought me there. They desired all the old warm air pipes used, as they were in good condition. I found in this church, which for three years had been fairly yearning to be heated, two sma'l brick cased furnaces, each carry. ing two lines of 5 inch warm air pipes connected to as many 14 x 22 registers scattered about the auditorium floor. The shortest pipe was 18 and the longest 34 feet in length, and I estimated that a charge of air occurred once in something over seven and a half hours. On receipt of this informstion the entire committee exclaimed, as one man, "that is not enough."

It is not. I got the job, but I did

not use the old pipes.

#### Repairing Agate Ware.

From H. M., Frankfort, Pa.-Will some reader of The Metal Worker please tell me of another way to repair agate or enameied ware than to solder it? What cement would stop leaks around the spout, &2., and withstand the action of fire and hot water?

Note.—We will be glad to hear from any of our readers who have a method of stopping such leaks other than so !dering.

#### Alumiuum Boats

The use of aluminum in the construction of torpedo boats and other craft designed to attain a high rate of speed with lightness of build is receiving considerable attention from European naval authorities. A new tor-pedo gunboat built for the French Government is thus described and com mented upon by the British Naval and

Military Record:

The boat is constructed of aluminum and its extreme lightness will allow of its traveling at the rate of 31 knots an hour. This speed will beat the record, which at the present time is 29.3, obtained by the new Thornycroft torpedo gunboat trials a few days since. There is no doubt that aluminum is the coming metal, and will be used a great deal in ship construction. As the little launch, which came out at the Henley regatta. can move as fast as other launches of the same size with half their power, it is fairly certain that it will supersede the present brass fittings of the forpedo gunboats, which are very weighty. Another matter to be borne in mind is the fact that it will be possible to carry more coal if the boats can be made lighter in construction.

The London Times states that Hiram Maxim has constructed a flying machine in which he and two others have siccessfully accomplished a flight of 500 feet. The machine is about 100 feet wide, has four wings and is propelled by two screws, which are driven by two compound engines.

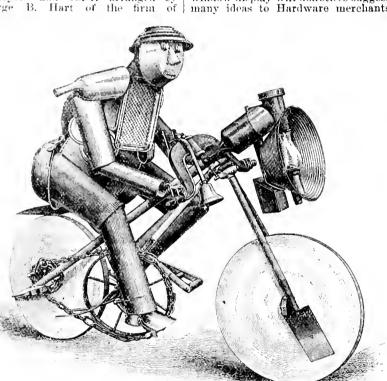
At length the vexed question of a site for the new mint in Philadelphia has been settled. Secretary Carlisla last week selected a site on Spring Gar den street, for which \$305,000 will be

# THE RETAIL STORE.

#### "Household Wants, '95 Model."

The accompanying cut represents a bicycle and rider, arranged by George B. Hart of the firm of

than an elaborately and handsomely dressed window. The design appeals to all beholders, as the goods used are familiar and in everyday use. This window display wilt doubtless suggest many ideas to Hardware merchants



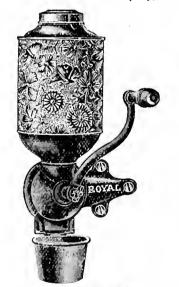
Household Wants, '95 Model.

George O. Hart & Son. Paducah, Ky., as a window display. The firm intended leaving it in the show window for a week, but it proved such an attraction that it was allowed to remain on exhibition much longer. The cycle was labeled "Household Wants. '95 Model." and at times drew such crowds that they filed the pavement and a portion of the street. The wheels of the machine were grindstones, the front sprocket a wheel barrow wheel. and the rear sprocket a lard press screw head. The chain on the sprocket wheel was formed of stay chains, and for the step a No. 4 broad axe was used. The npper frame bar was a post hole digger, the lower frame bar a four tine D-handle manure fork and the seat was a molder's shovel. For the front fork two boys' spades were used, with a screw wrench for the front axle. The handle bars were a No. 4 bell yoke, with an engine bell attached, and a side lamp for a lantern. The crank arms were sansage meat cutter cranks, and the pedals were rat traps. The rider had a pudding pan face can screw eyes, a coffee spout for a nose and a patty pan for hips and teeth. Four dish pans were used for the rider's body, grocer scoops for shoulders, conductor pipe for arms, stove pipe for legs, pint cut s for heels, small grocer scoops for feet, garden weeders for hands, a nickeled tray for shirt front and a japanned wash pan for a hat. The selection and arrangement of the articles in making up the exhibit is unique to a marked degree, and probably attracted more attention

which can be worked out and result in much benefit to them.

#### New Royal Pound Mill.

The coffee mill here shown is offered by the Arcade Mfg. Compsny, Free.



New Royal Pound Mill.

port, Ill. The mill is made of cast iron, finished in black enamel, and furnished with a fancy embossed sheet metal hopper. The fact that the mill fastens to the wall is a feature to which

the manufacturers give prominence. They state that the hopper will hold a pound of coffee; that the coffee will be kept air tight, and that the mill is supplied with improved grinding burrs which do the work rapidly and with ease.

#### The Unique Skewer Puller.

The accompanying cut represents a skewer puller put on the market by F. W. Hall, 178 Broadway, New York. In use the tinea of the carving fork are



The Unique Skewer Puller.

thrust into the roast, with a tine on each side of the metal or wood skewer. The loop of the puller is placed over the exposed end of the skewer, and twisted slightly to loosen it, after which a pull on the handle of the puller draws the skewer. The pullers are furnished in steel, nickel plated; steel, silver plated, and in solid nickel silver.

#### The Sloteman Gas Burner.

The accompanying illustrations show gas burner manufactured by the O. T. Sloteman Company, 39 Court street, Buffalo, N. Y. Fig. 1 presents a general view of the burner, the gas and air mixer appearing at the right. The burner is constructed with two cham-bers, one above the other. The gas and air entering at one end of the top chamber pass along its entire length and then down to the chamber beneath, where it flows from the holes indicated in the engraving. By this method, it is claimed, the gas and air are heated to a high temperature before they are brought to the point of combustion. In Fig. 2 is shown a sectional view of the mixing chamber. Attached to the gas valve is an eccentric shaped casting, its operation, raising or lowering the door governing the air supply, in-creasing or diminishing the supply of gas and air as desired, and maintaining, it is claimed, an evenly proportioned mixture capable of producing an in-tensely hot flame with an economical consumption of fuel. The gas enters through the side of the chamber and passes to the mixer, as shown, so that when the stop cock in the supply pipe is turned on a small quantity of gas and air is mixed ready for burning. To inair is mixed ready for burning. To increase the supply of gas it is simply the end of the regulator is drawn from the orifice of the chamber in which it works. This burner is said to overcome the difficulty of flashing back, and the

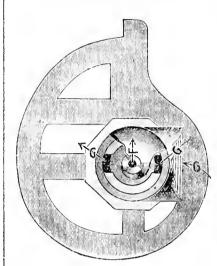


Fig. 3.—Eccentric and Air Regulating Chamber,

heating of the gas and air previous to burning is said to effect an economy in the consumption of fuel, while, at the same time, a flame of greater heating

O.T.SLOTEMAN
PATGAPPLOLFOR

The Sloteman Gas Burner.-Fig. 1.-General View of Burner.

necessary to turn the eccentric to the right to open the gas valve by removing the end from the crifice of the chamber in which it works, thus permitting a larger volume of gas to enter. The coarse screw with which the gas valve works being cut away at two different points and the amaller tapering point of the valve render this operation possible. Fig. 3 illustrates the ec-

efficiency is secured. The burners are made in six sizes adapted for use with tubular boilers, not air furnaces, ranges, stoves and wherever heat is required.

According to the Baltimore Journal of Commerce, it appears that not one American steamship has been loaded at that port during the last four years. In connection with this fact the Journal re-

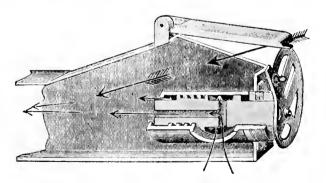


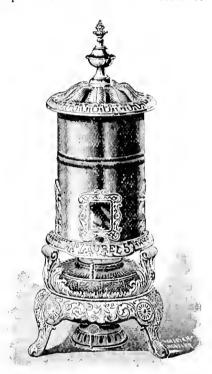
Fig. 2.—Sectional View through Mixing Chamber.

centric for regulating the air, and shows the chamber which permits an increased flow of gas to the mixer. F represents the orifice, which is always open during the operation of the mixer, and G G indicate the points on the coarse ecrew of the gas valve that are cut away, permitting the gas to flow through when marks that in 1860 upward of 66 per cent. of the export and import trade of the United States was carried in American vessels, while in 1893 that quantity was reduced to less than 12 per cent. Statements of the value of goods exported from Baltimore for the three fiscal years ended June 30, 1894, show

that out of \$98,796,856 exported for the year ending June 30, 1892, only 1.53 per cent, was carried in American vessels, while 1893 and 1894 were 1.47 and 1.76 per cent, respectively. This presentment argues the necessity for a change in the present navigation laws.

#### Art Laurel Oil Heater.

The accompanying picture of the Art Lanrel oil heater shows one of the original designs that has been patented by the makers, the Art Stove Company, Detroit, Mich. The stove is not only handsome in appearance, but is claimed to be a very powerful heater, having a full 9-inch wick. The esstings are full nickel plated, making a pleasing contrast with the planished iron body, and a very cheerful light is shed through the mica windows when the stove is in operation. The reservoir is made of



Art Laurel Oil Heater.

very heavy brass, richly ornamented and so arranged that it can be readily removed for cleaning or filling. The hody section hinges to the base, so that the burner can be easily exposed for trimming the wick and for adjustment. All the parts are interchangeable, and the stove is claimed to be a strictly high grade article.

The farmers of Indiana are feeding wheat to hogs and selling their corn. Wheat brings only 43 cents a bushel, delivered at the country stations, while corn sells readily at from 45 to 47 cents a bushel. The farmers say that as wheat contains twice as much nutriment as corn, and hogs are fetching good prices, it is an economy to feed the wheat to the hogs and sell them and the corn.

According to the Textile World, the effect of the late depression has been illustrated in the diminished construction of new textile mills. Only 58 mills were completed during the half yesr ended June 30, 1894, compared with 110 and 135 for the same periods in 1893 and 1892 respectively. The bulk of new construction has been in the Southern States

# PLUMBING and GAS FITTING.

### Gas and Gas Fitting.—V.\*

BY J. W. HUGHES

#### Inspection of Material and Work,

Having introduced the service and connected the meter it is next in order to take up the question of the sizes and distribution of the different pipes for the convey ance of gas from the meter to the different fixtures, stoves, fire places, &c., in a building.

Before so doing a few general hints as to conduct and procedure will be in

as to conduct and procedure will be in order. The rule for the successful gastiter to observe, first, last and all the time, is to be eareful. It is much easier to find a sand hole, or a defective thread, in a fitting when it can be held in the hand and carefully overlooked than it is to find the same hole when the fitting is in place, and that place usually the most awkward place possible, perhaps behind a beam, or covered by flooring or lath and plaster. And, having found it, the cost of its removal and replacing, or otherwise making good the defect, is at least tenfold what it would have been had a little care been taken to find the defect be fore the fitting in which it exists is put in position.

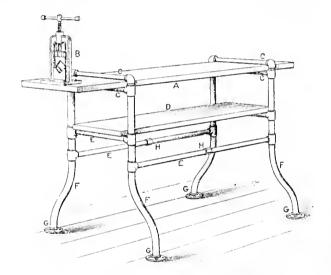
The same remarks apply to choked or split pipes, or pipes having a defect in the thread. Some leaks are the result of the work entailed in fitting the tipes in position, but the greater portion of them are defects in the material that can be found at the proper time—viz., when the pipes are being handled at the bench. An excellent plan is to treat the smaller malleable fittings—that is from ½ to ½ inch, as if they were all defective, by coating them with an asphalt varnish. Tats is quickly and inexpensively done in the shop by put ting a quantity of the varnish into a large pot; a big solder pot answers very large pot; a big solder pot answers very well, warming it sufficiently. Do not get it too hot or a very ugly fire will be the result. Then, having strung the fittings on a wire, dip them into the warm varnish, letting them remain until they have become as het as the varnish. Lift them quickly out, shake violently, and hang up to harden. This method effectively disposes of the little, almost invisible sand holes so common in small fittings, even when made by in small fixtings, even when made by the very best of makers. Before doing this the fittings should be looked over for any of the more serious defeets, such as poor threads, large hole, misshapes, &c. An experience of many years in the use of gas fittings, made by the best of makers, American, Canadian and European, warrants the statement that the taking of the foregoing precaution

pays in time, temper and reputation.

Never let a new job out of your hands until it is certain that it is tight. A pump for testing costs little and will save its cost on one job. Having applied it, heed the lesson it teaches and never give up until the job is tight beyond question. I write this for the benefit of fitters in small shops, and

such places as may be without superin. tending foreman or gas inspectors, and knowing from personal experience how strong the temptation is to pass over a smill leak, the only evidence of which is that the pump gauge will not stand. It is wearisome to spend hours climbing about a new building looking for something that can nelther be seen, smelt nor felt, yet which you know certainly exiets. But it is a much more serious matter to have to hunt for a similar leak in a finished building. Carpets to raise, thors to take up, plaster to break, fixtures to remove, and last, but not least, a justly indignant housewife who drops in every few minutes and helps the worried gas fitter keep his temper by making nice, pleasant remarks. Find the leak and make the job tight

ous processes of construction that follow the fitting of the gas pipes, a gasalier will not hang plumb, nor a bracket set parallel, unless the nipple and drop are properly act. See that drops are a proper length to suit the center piece. If the exact depth of centers cannot be ascertained have the drop so set that it can be easily removed and replaced. Make proper allowance for projection of nipples for side brackets beyond plaster, so that the bracket will screw on with the ordinary back plate and make a proper and neat connection. Be especially careful to set bracket nipples (when there are two or more on the same wall) at an equal hight to a 12 inch. A slight variation in hight may be un. noticed by the eye in an unfinished building, but the difference be quite



Gas and Gas Fitting .- Fig. 13 -Gas Fitters' Bench.

every time is the only rule. There is no short cut for any one worthy the name of a gas fitter.

Having got the job tight every care must be taken to see the pipes are in such a position that they will not be injured by any of the work to be done after they are placed. See that due allowance is made for any settling that may take place which may break a pipe, and that floors, base boards, architraves, mantels, laths, furring, &c., may be put in position without coming in contact with the gas plpes in such a way as to injure them. I have seen a carpenter laying flooring take the back of his axe and hammer a gas pipe out of the way, this being easier and quicker than taking the edge of the axe and trimming off the floor so as to make room for the pipc. The gas leak was "none of his funereal;" he was only interested in lay-ing the floor, and if he was doing it piece work, so much a square, as is frequently the case, he had no time to waste In nice trimming to mect the shortcomings of the gas fitter. See that the pipes are well secured, especially those pipes that have to carry heavy gasaliers or brackets.

Take care that nipples and drops are plumb and tight, and so secured that they will stay so. During all the vari-

discernible when the walls are finished and the brackets in place, especially if walls are decorated to an exact pattern. Be certain the drops are in proper position in the center, or otherwise, as the case may be. To ascertain the exact place is sometimes difficult, and the architect, plasterer or decorator may have to be consulted. The right way to take ceiling centers is a very much disputed point, especially when there are breaks or projections to complicate the problem. But it is the gas fitter's duty to ascertain as definitely as possible what is to come in the way of interference after he has finished his work.

#### Laying Out Piping.

Avoid as much as possible the placing of pipes on outer walls, or in such positions as may be cold or subject to drafts from around door or window casings. Where a pipe must be placed in such a position a little time spent in wrapping the pipe with building paper, wrapping the pipe with building paper, calking cracks with oskum, or taking other precautions against the cold walls or drafts coming in direct contact with the pipes will be well and profitably spent. Remember it will be difficult, if not impossible, to attend to such things after the building is completed. Run the pipes with a fall

Opprighted, 1894, by David Williams.

toward the meter. If this is not possible they must be laid at least level. Where this cannot be done for the whole job it can be done in sections, or the pipes or certain branches be run with an incline to a suitable place and a drip pipe and cock be inserted. These precautions are especially necessary when gasoline gas is used, or any gas which is simply a vaporized fluid, sure to return to its original form on application of cold.

If there is a plan to work to, study it carefully before beginning operations. Ascertain the relative position of the different openings one to another, and be guided in proportioning your pipes to what may be expected from them. A large room will certainly have a large gasalier hung from its center drop, and while § inch may be, as a rule, considered right for ordinary drops, it would not do to fit so small a pipe for a ballroom or reception hall. Use common sense. If you have it not, get it as soon as you can. A celebrated painter was asked with what did he mix his colors in order to get the beautiful effects characteristic of his work. His reply was—brains. That's it, brains are what is wanted in the gas fitter's head. If he has not got them in the regular way, then he had better quit the business and go at something where mere mus

cle is all that is necessary.

A plan was mentioned. The usual plan a gas fitter has to work to is the ordinary building plan, showing the lay out of the various apartments, with a small cross or circle in certain places that stand for the gas openings. plan showing the various sizes of the pipes and the way they are to run is something the writer has yet to see coming from an architect's office. generally covers his retreat by inserting a clause in his specification that reads:
"The gas is to be run to the various halls, rooms, passages and other apartments as shown on plans. Pipes to be of iron, well put together, screw joints and red lead. To be perfectly tight. The whole in accordance with the gas company's rules and regulations.

Such being the case the gas fitter had better mark the pipes in the plan for study the situation, then proceed to mark on his sizes. Gas companies' rules do not always work out right. Having thoroughly studied the plan and got into your head what is expected, take your plan and go around the building and with chalk, mark the different posi tions on the walls, floors or studdings. By the time this is done any fitter of ordinary intelligence should be ready to commence the actual work of fitting the pipes.

#### Gas Fitters' Tools.

This brings us to the question of tools for ordinary jobs. A kit of piping tools from 2 inches to 4 inch will suffice, consisting of the different stocks and dies, the latter right and left, and suitable tongs. Some form of dies that make the thread with one cut are the best, and the ordinary piping tongs will give the best results. Too much time is lost in new work in handling shifting tongs. A couple of pairs of each size tongs from 1 to 1 inch are desirable in a good kit in order that one pair may be laid aside for repairs while the other is in use. It does not pay to handle pipe with tongs that have lost their shane or edge by use. There are some forms of dies better than others; those that while making a full thread by being once acrewed on to the pipe, permitting of adjastment, and sharpening when necessary, are the best. good vise, with a sure grip jaw and a quick working thread is indispensable, also a bench on which to put it. The handlest bench for a gas fitter is one made of iron pipe of such a siz: that it can be easily carried in a wagon and be handled by the fitter and his helper. This bench, shown in Fig. 13, can easily be made by the fitter and will be much better than sticking the vise on a board and supporting it on a couple of boxes or a barrel, or any other makeshift device, or screwing the visc to an upright plank jambed between floor and ceiling, or securing it to studding, as is frequently done.

In the sketch, Fig. 13, A is 1½ inch plank, about 1 foot wide. B, visc screwed to plank (bolted). C, C, C, C, cross pieces of 1 inch gas pipe put to-gether with right and left screwed pipes and fittings, just wide enough apart to receive plank A snugly. D. plank laid on lower cross brace E, and is handy to lay tools on. E, E, E, cross and longitudinal braces, put together with right and left threads for securing and bracing the legs F. G, flanges

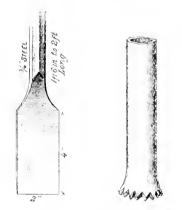


Fig. 14.—Floor Raising Chisel.

Fig. 15.—Wall Boring Tool.

that may be acrewed to floors when necessary. When it is desired to have necessary. a long bench, right and left buckles may be inserted at H, which permits of the bench being handily separated. An ordinary bench will be strong enough if made with 14 pipe for the legs, the braces to be  $\frac{3}{4}$ . For heavy work the legs may be made of 2 inch pipe and the braces 11 inch.

In addition to the ordinary pipe tools a tape line is necessary; also a good handy saw and a lock saw and an assortment of chisels and jumpers for cutting into and through walls and wood work, a long gimlet such as bell hangers use, and, where beams are to be bored, a ratchet brace and an assortment of auger b'ts, such as are used by steam Should floors have to be raised a specially made floor lifting chisel is I: must be made of good desirable. steel, the blade 2 inches wide and the handle 1 foot 6 inches to 2 feet long, as shown in Fig 14 A chalk line and a strong tool box with a good lock and key are indispensable; also a handy atep ladder.

A very serviceable tool for making the smaller sized holes through blick walls, when bricks are not too hard, is made from a piece of iron pipe, the end being enlarged (made trumpet mouthed) and the edges notched. This tool, Fig. 15, when struck with a hammer and constantly revolved, soon makes a clean hole through an ordinary brick wall. But care must be exercised when the wall is nearly pierced not to knock out a brick from the side of the wall opposite which the work is being done. This is a very handy tool for use on old work, as it saves amashing of plaster. It is not, however, of much use for pipes over \( \frac{a}{4} \) inch, being too clumsy beyond that size. A similar tool made out of thin brass pipe serves to clear away plaster from around a nipple or drop that it is desired to remove and that has been plastered in. In the latter ease it is simply turned by band. A gas fitter's torch and blow pipe is useful in applying gas fitters' eement. At one time it was customary to put all the joints together with cement, but of late it has The cement joints been abandoned. required great care and time, and unless well made were liable to be eracked and cause loaks. But the cement is very useful in making repairs of small leaks or putting together the parts of gas aliers and for similar operations.

#### Wolff's New Steel Sinks,

The L. Wolff Mfg. Company, 93 to-117 West Like street, Chicago, have put in a complete plant for the maniseture of drawn steel sinks, and are now making a full line. These sinks are furnished painted, galvanized or enam-eled as may be desired, and of two kinds, which have been named the Anchor and the Diamond brands. The Anchor brand is made from heavy stock, and has Wolff's parent brass outlet connection. The Diamond brand is lighter and has the collar connections, as on the ordinary cast iron sinks. These sinks are not liable to break in use or in transportation. The company have just issued a particularly handsome circular treating of these sinks. It has a heavy paper cover, ln pale blue, with embossed gilt title. The contents are printed in two colors. The styles of sinks are illustrated, pricelists and code words are given, and full details are shown of the several kinds of outlet connections. These have a clear and full sized waste way, with no bars or grates under the strainer. If the waste pipe should become obstructed the strainer can be removed without disconnecting the pipe to insert the hose of a force pump. A plug or stopper waste is also made, which can be used in place of the strainer to hold water in the sink if that should be desired for any purpose.

#### TRAPS AND VENTS.

A. Lincoln Moody entered upon his duties as plumbing inspector of Waltham, Mass., last week. He has had 14 years' practical experience.

SMITH & BURNHAM is the name of a new firm in the plumbing business at Littleton, N. H.

GEORGE H. FARRELL, Westfield, Mass., has opened a plumbing shop at Ches'er as a branch of his local business.

UP TO AUGUST 1, at Detroit, Mich., 124 master plumbers had been examined as to their qualifications to carry on the business of plumbing. Of this number 97 have passed the examination, certificates of competency having been refused the rest. There are about 15 master plumbers in the city who have not been examined. There are proba-bly 100 journeymen plumbers in the city, but 15 of these have been exam-ined. Five of them were refused certificates.

THE UNION SOAPSTONE COMPANY, 14 Marshall atreet, Boston, Mass., find a lively market for their soapstone specialties in New England. In addition to making a line of sinks and laundry tubs they make all sorts of stone work for plumbers' use. They also supply cake griddles, soapstone wood stoves, open grates and funnel stones intended for use in the floor for all sizes of stove pipe; also a wide line of register frames and borders.

Plumbing Inspector W. A. Ford of Cambridge, Mass., is much pleased with the result of his first six months' work and states that the plumbing that has been done has been of an improved character.

THE BOARD OF HEALTH OF Reading, Pa., are taking steps to have the plumbing and drainage work done in the city inspected by a qualified officer.

PRESIDENT JOHN MITCHELL of the National Association of Master Plumbers telegraphed official greetings to the convention of Journeymen Plumbers, Gas Fitters, Steam Fitters and Helpers held at St. Louis last week.

THE TINNERS' MACHINERY & SUPPLY COMPANY, 9 Cliff street, New York, issue a circular of the Empire blow pipe intended for plumbers' use in wiping seams in tanks and melting fittings from old pipe. Mention is also made of the full line of plumbers' fire pots, for gas and gasoline, and tools carried by this concern.

A POTTSVILLE, PA., PAPER speaks of the opening of a permanent shop by Plumber Sayder, at Tremont, Pa., as a worthy enterprise.

Andrews & Peck are opening a plumbing and gas fitting store on Fifth street, Fremont, Neb.

THE MASTER PLUMBERS of Florida met last month and formed a State association of master plumbers, which includes nearly every master plumber doing business in the State. The association has affiliated with the National Association and received its certificate of membership on August 3. The officers for the ensuing year are: President, J. E. Kuchler, Jacksonville; vice-president, Geo. H. Fernsld, Sanford; secretary, John Einig, Jacksonville; treasurer, R. E. Yonge, Ocals.

A 90 PAGE CATALOGUE is just being sent to the trade by Fred. Adee & Co., New York, in an embossed leather cover of fawn color, with the address of the house in silver gilt. Without a title page or trade address the first page shows the newest water closet made by the house—the Duplex, which is claimed to have special features of excellence, working with the flush tank but 3 feet above it and made of vitreous earthenware. Several styles of the closet are shown, followed by the Purus front and back washout closet, the Capital siphon closet, the Shamrock, Volunteer and Nerens closets. Various kinds of flush tanks and seats are shown, and several pages illustrate Ilyde's extension water closet. The Perfecto leads a line of urinals, followed by a variety of lavatorics and basin traps and fixtures. Next are wash trays and their fixtures, then several pages are devoted to enameled baths, and the last pages to plumbers' brass work and porcelain sinks.

W. F. RABENAU, Iowa City, Iowa, has removed his plumbing establishment to the Mendenhall (McLaughlin) Building, across the street from his former location.

THE PLUMBERS of New England are well acquainted with James Barrett, 193 Tremont street, Boston, and his

goods. He manufactures a line of sanitray specialties, some additions to which are about to be made. A new catalogue is in course of preparation.

Sumner & Goodwin, 15 Oliver street, Boston, are one of the New England plumbers' supply houses carrying wrought iron, cast iron, brass and lead goods of every description called for by the plumber and pipe fitter.

In The Metal Worker for July 21, we referred to the Onondaga hathtub as made by the Pierce, Butler & Pierce Mig. Company of Syracuse. N Y. This was an error, as the tub is manufactured by the Steel Clad Bath Company of New York, although it is sold by the Pierce, Butler & Pierce Mig. Company.

MANAGER F. W. WEBB of the Henry McShane Mfg. Company, Boston, is always pleased to show his sample room to visitors, being one of the handsomest in the city devoted to plumbing goods. The floor is mosaic tile, the center being of a dark pearl tint and the border a maroon. The ceiling is embellished with bas relief ornamentation, and is finely frescoed. The side walls are wainscoted with file. An impression of spaciousness is given to the room by the use of two mirrors at the back of the apartment. In the center of the room an arch leads to two handsome bathrooms, the gold room being reached through an arch decorated at the top with a grill, to which are attached handsome portières. In the room proper a handsome mirror hangs over an onyx lavatory with gold fixtures, while at the back of the room is located a roll rim bathtub, properly fitted, and at one side is a Roxbury water closet. In the blue room the ceiling arches from three sides to a common center, entrance to the apartment being effected through an arch supported by Italian marble colnmns. The ceiling of the blue room is appropriately frescoed and decorated, while at the back is a white porcelain bath and at one side a laystory with French mirror set in a pale blue frame. At the opposite side of the room are arranged a Sitz bath and lavatory. In the main asmple room, along the wall on one side is a varied and handsome line of water closets, while different styles of lavatories are shown on the opposite side. A handsome lavatory, called the Radcliffe, is so arranged that the overflow can be readily cleaned. They also show an automatic before and after wash hopper closet, designed for school

WM. WILEY, Gardiner, Maine. will move into the Charles Wakefield Building, two doors east of his present location, and will make a specialty of plumbing in the future.

P. L. LYONS of Montpelier, has opened a plumbing shop in the store formerly occupied by A D. Pratt, at West Randolph. Vt, with Henry Fisher, also of Montpelier, in charge.

Additional floor space having been devoted to the plumbing department of the Smith & Anthony Company, Boston, Manager W. H. Lloyd has arranged the Sanitas specialties in a manner calculated to display the goods to the best advantage and prove most attractive to his visitors. The Sanitas Regal water closet is set up so as to show its operation, and various patterns of enameled baths are displayed on the floor. By the use of a triangular display frame three lavatories are shown in a little more space than is required for a single fixture when exhibited in the ordinary manner. The top is also used for

displaying ornamental lavatory bowls. Through the efforts of Mr. Lloyd the Sanitas sample room is one well worthy of a visit.

Frank R. Rafferty and Patrick F. Moriarty have formed a business partnership and bought the plumbing and steam heating business of E. H. Holmes & Co. at Willimantic, Conn. The firm name will be Moriarty & Rafferty.

JOHN FREITAG, formerly of the firm of Freitag & Witterberg, plumbers, has purchased the late William P. Hoctor's establishment at 12 South Sixth street, Terre Haute, Ind.

The Board of Examiners of Plumbers at Baltimore, Md., last week examined a number of applicants for registration. The total number of registered plumbers is 323, which is more than 100 less than were certificated by the board during the first year the law went into effect. Members of the board express the opinion that unregistered plumbers are engaged in doing work, in violation of the law, and stated that steps would be taken to have some of them arrested.

JOSEPH H. SOUDEN has opened up a new plumbing establishment in room No. 518 in the new property of Henry Eberwine on Main street, Vincennes, Ind.

An interesting meeting of master plumbers was held at Asbury Park, N. J., recently as a result of the call issued to the Monmouth County, N. J., plumbers by State Vice-president John Hickman.

STATE VICE PRESIDENT JOHN HICK-MAN of Paterson, N J., visited Passaic, N J., on Thursday night and a flourishing association of master plumbers will soon be in operation there as a result.

#### Small Arms Tests at Newport.

The important competitive tests of small arms for the naval service, which began at the Naval Torpedo Station, Newport, R I.. on August 1, will be watched with much interest by foreign powers as well as by the naval and military authorities of this country. On the result of these trials will rest the decision of the Navy Department as to the best type of weapon with which to equip the sailors and marines of the United States Navy. In March last, Secretary Herbert issued a call to inventors for a breech mechanism to serve the small caliber, 0.256 inch, barrels adopted by the Naval Ordnauce Department, and offering to furnish new barrels for experimental purposes. Twenty-seven of these barrels were furnished by the Government, many of them to leading makers of small arms. Considerable interest is expressed in the character of the various devices sub-The first order for the new mitted. rifles will probably amount to 15,000 weapone, and it is believed that a me important improvements in small arm eflictency are likely to have been called The tests at Newport will be forth. exceptionally severe, safety, general action, defective ammunition, excessive charges, rapidily, accuracy and ability to stand dust and rust entering into consideration. The endurance test will be 500 continuous rounds without cleaning, and the facility with which the breech mechanism and magazine system can be completely taken apart and put together will be noted.

## HEATING 20 PLUMBING.

### NEW WORK AND CONTRACTS.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until August 29, for a low pressure, return circulation, ateam heating and ventilaring apparatus for the United States Post Office Building at Galesburg, Hi. Drawings and specification may be obtained from the Supervising Architect, Washington, or from the superintendent at Galesburg, Ill.

E. H. BAGLEY, White River Junction, has the contract for heating the Graded School at Northfield, Vt., instead of at Montpelier, as previously stated.

THE NEW FIRM of O'Keefe, Glennon & Co, sanitary plumbers and steam fitters, Appleton, Wis., have contracts for steam heating the Brothers' Hotel, at Kaukauna, and plumbing Peter Filler's Block, same place; also in a number of residences.

Bids for heating and plumbing the new County Alms House, at Rome, N. Y., will be received by the Building Committee until 1 o'clock Monday, August 20, 1894. Plans and specifications may be examined at the office of the architect, Jacob Agne, Jr., Arcade Building, Utica, N. Y.

New Heating and Ventilating apparatus is to be put into the Silver Street School at Westfield, Mass.

The new Queen Anne residence, lately built by Dr. C. B. Warner, on the bluff overlooking Lake Champlain at Port Henry, N. Y, is to be heated by a No. 3 Stanoard steam boiler manufactured by Giblin & Co., Utica, N. Y. M. Hogan of Port Henry is erecting the apparatus

MICHAEL J. DILLON has taken the contract to remodel the plumbing in William Hager's residence on Church street, Doylestown, Pa.

THE BOARD OF PUBLIC WORKS, Buffalo, N. Y., have contracted with Mensch Broa. for plumbing work to be done at Engine House No. 9 and Hook and Ladder House No. 1, located on the northest corner of Washington and Tupper streets, at their bid of \$797; also for work to be done at Engine House No. 21 and Hook and Ladder House No. 6, on Best street, near Jefferson street, at their bid of \$597.

- C. O. SAWYER & Co., Searsport, Maine, have secured the plumbing for the hotel and will be assisted by Mitchell & Dunbar of Belfast.
- L Moddocka. Boothbay, Maine, has begun the plumbing work in the new hall building there.

THE CONTRACT for heating apparatus for the public building at Lowell, Mass., has been awarded to Farrell & Conaton of Lowell at \$6800.

THE CONTRACT for putting in heating apparatus and plumbing the City Hall and Police Headquarters at Rutland, Vt., has been given to Tracy & Moran.

THE CONTRACT for the plumbing and water closets in the Centennial School, at Evansville, Ind., has been awarded to George S. Vaughn.

E. MEIELEM, Meriden, Conn., has the plumbing contract for two cottages for M. S. Rourke.

THE CONTRACT for plumbing, heating and ventilating the new school of

St. Joseph's parish, at Pawtucket, R. I., has been given to the Pawtucket Steam & Gas Pipe Company.

Thos Oakes has the plumbing contract and Ball & Lamb the heating contract for the new residence of Dr. C. C. Beach, Hartford, Conn.

JAMES RONALD is erecting a \$6000 residence at llartford, Conn., for which Olds & Whipple have the contract for plumbing and heating.

THE COWLES-COUCH COMPANY have the plumbing contract for Dr. H. C. Bullock's new residence at Hartford, Conn., also for four cottages being built by I. Bragaw.

E. N. SIPPERLY of Westport, Coun., has taken the contract to drive an artesian well for Dr. Danham of Greenfield Hill. Mr Sipperly has just completed a large windmill for E B. Sturges at Green's Farms, besides doing all the plumbing, piping. &c. The tower is of galvanized steel 50 feet high, with a 2200-gallon tank.

STAMFORD, CONN., is to have a new High School building 70 x 140 The building will have a slate roof, copper gutter and a system of heating and ventilation.

IN JOHN JACKSON'S new two family house at Waterbury, Conn., the Barlow Bres Company will do the plumbing, and it will be heated by two Spence hoilers by M. J. Daly of the Waterbury Steam and Gas Pipe Works.

LEE BROTHERS, Concord, N. H., are heating Gov. Smith's Block, Concord, and Dartmouth College, Hauover, N. H., using a carload of Exeter ornamental radiators in each.

The store in the Hoadley Building, 47 Church atreet, New Haven, Conn., is being fitted up in a most elaborate munner for a café, by J. Casariego. A tile floor is being laid, a metal ceiling put on and the interior will be hand somely fitted up with hard woods and mirrors. The place will be brilliantly lighted by combination gas and electric fixtures, the one in the center having 150 lights. In the basement a lavatory is being fitted up in marble, with Mott's fluest fixtures and a tile floor. Kelly & Coady, the new firm of plumbers, have charge of this work. George Pettit, Jr., of 307 Grand avenue, Brooklyn, is putting up the metal ceiling.

WM WILLIAMS, Oak Park, Ill., will install a steam heating plant in Dunlpos' Block. The United States Radiator Company's goods will be used.

The School Board of Newark, N. J., are to get bids from Newark firms for steam heating the new school houses in the Seveuth and Eighth Wards.

Daniel J. Rock, 86 North Clark atreet, Chicago, has the plumbing, gas fitting and sewerage in the residence of Mr. Peterson, Marianna street, near Lincoln avenue.

KEHM Bros. & MERTZ, 289 East Kilz e street, Chicago, are to supply a hot water heating and ventilating plant for the Lyons township high school, at LaGrange, Ill.

CHAS. H. GRAVES, 62 North Clark atreet, Chicago, is to install ateam heat ing plants in the flat building of M. J-Teehan, 269 Superior street, and in the residence of James McGiveran, Austin, 111

THE S. H. BEARD HEATING AND PLUMBING COMPANY, New Britain, Conn., have taken the contract for heat-

ing by steam the Samlow Block on Arch street. The company will also furnish and put up the steam heating apparatus for the Hotel Columbia, and will put in a hot water heater in the Allen Homestead at Pequabuck, Conn; also the plumbing for the Hotel Columbia and Samlow Block.

THE ANSHUTZ-BRADBERRY COMPANY, Pittsburgh, Pa, have a number of contracts on hand at the present time for the Tremont hot air furnaces. Among the buildings in which they will be placed are the following: Allegheny, Pi, Eleventh Ward School and residence of Henry Frey; Pittsburgh, residence of George T. Marshall, John W. Grove and twelve houses for Edward Powell; Buckhannen, W. Va., residence of John Crislip and store of Whitescarver & Brake; Cameron, W. Va., residence, Presbyterian Church and Parsonage; also residences in Fayette City, Champaign, Ill., Tarentun, Pa. and Ravena, Ohio.

The Walcott Hurlbut Company, 175-177 Lake street, Chicago, have received orders during the past week for 110 sections of the Siphon Eduction closet range.

EDWARD ARMS, Bellows Falls, Vt., has nearly completed the foundations for a block of houses on Westminster street.

At the special town meeting held at Barre, Mass., an appropriation of \$1950 was voted for heating and ventilating School House No. 1. The committee is composed of T. P. Root, C. F. Atwood, G. M. Harwood, B. F. Brooks and G. E. Allen.

THE PLUMBING AND GAS FITTING CONTRACT for the new residence of City Physician Hancock was awarded to the Platt Brooks Plumbing Company, Little Rock, Ark.

THE CLERK of the School Board of Springfield, Ohio, has been ordered to advertise for bids for a heating plant for the Clifton Street School.

ARCHITECT ZEITNER'S residence at Tyler, Ill., is to be warmed by a Hub heater furnished by the Smith & Anthony Company, 219 Lake street, Chicago.

THE CONTRACT for heating and ventilating University Hall, Madison, Wis., has been let by the Board of Regents to the Bayley Heating Company of Milwaukee, and the contract for heating and ventilating the North Hall has been awarded to King & Walker, Madison.

The absorption by the United States Cordage Company of the big plant of the Pearson Cordage Company has been successfully accomplished. The latter has hitherto been the chief competitor of the Cordage Trust, and its acquisition is regarded as a triumph to the latter. The purchase price of the plant is said to be \$1,000,000. The United States Cordage Company-the successors of the National Cordage Company, who went into liquidatiou a year ago-completed the adjustment of their affairs last week. Frank K. Sturgis was elected president of the corporation; and the following Executive Committee was chosen: F. K. Sturgis, W. W. Sherman, Francia Smith, E. F. C. Young, Rudolph Keppler and John I. Waterbury. The other officers of the company are: Vice-president, W. H. Corbin; secretary and treasurer, W. C. Lane; Finance Committee, G. G. Williams, F. K. Sturgia and G. H. Gossler.

# STEAM AND HOT WATER.

The Ornate Radiator.

The accompanying illustration shows the Ornate radiator made by the United States Radiator Company, Saltsburg, Pa., and for which the J. L. Mott Iron Works, New York, have the Eastern agency. As will be seen by the picture, the radiator has two loops, joined as usual at the top and bottom, and a novel effect in the design is gained by their being connected at two intermediate points. The connection of the loops at the middle is used for central decora-tive panel and the loop is thus divided into an upper and lower part, each side of which is decorated differently-pond lilies, wild roses, dogwood blessoms and cattails being used for orramentation. In connecting the loops it is possib'e to alternate the decorations or to so arrange them that viewed from either end the same ornamentation shows. They are capable of being very hand-somely finished in colors. In construcsomely finished in colors. tion the sections are joined by male and female nipple and socket, so made by epecial machinery as to fit absolutely tight without the aid of packing, and are securely held together by means of long heavy bolts which are hidden. The radiator is made for both steam and hot water in four different hights—23, 32, 38 and 45 inches, exposing respectively 2\frac{3}{4}, 4, 4\frac{1}{2}\$ and 5\frac{1}{2}\$ square feet of surface. Each section is 8 inches wide auriace. Each section is o inches wide and 2½ inches thick, the width of legs being 8½ inches, with hight from the floor to the center of opening of 5 inches. In ordering it is necessary to state whether the radiators are for use with hot water or steam, and if for steam, for a one or two pipe system. An advantage claimed for the Ornate hot water radiator is that the accumulation of air at the top does not stop the circulation through it unless the water rises only to a point below where the lower panels connect, which would be a very uncommon occurrence.

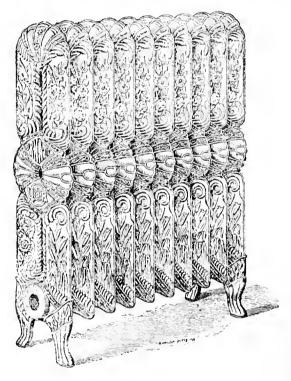
# Hot Water Plant Heated by Steam.

From Lucania, Scranton, Pa.—We write to in quire if there is any successful way or system of heating buildings with hot water, using attam from mains in the street for warming the water? We have heard of such a system. If there is any such plant in successful operation kindly let us know where it is, and if not asking too much, please give some explanation.

Note.—We shall be glad to hear from any of our readers who know of such heating plants. In The Metal Worker of December 15, 1888, we reprinted from The Stevens Indicator a description of a plant employed by the late Edwin A. Stevens for heating his residence at Castle Point, Hoboken, N J., and we briefly quote from the account mentloned. The plant was installed in 1858, and consisted of a two-flue boller, 42 inches in diameter and 20 feet long, placed 180 feet from the house, and at

a depression of 25 feet below the basement of the structure. Steam at 30-pounds pressure was conducted from the boiler house in a 3-inch galvanized iron pipe to the basement of the building, where 14 branches were taken to different points. Each branch was connected with a cylindrical cast iron drum, in which was a helical coil of \(\frac{4}{4}\)-inch iron pipe, a little less in diameter than the drum through which the steam circulated, and then returned to the boiler by gravity. Two inch air tubes ran through the drum from top to bottom,

The coal consumption averaged about half a ton per 24 hours during the cold season. This system has been repaired on two different occasions, the mains running from the steam boiler to the house rusting out and the main now consisting of 3 inch cast iron pipe, laid in lengths of 4 feet with flange connections, and especially designed for strength and to resist the abresive action of the pipe sliding on their flanges during expansion and contraction. Resistance to corrosive influences, which formerly destroyed wrought from pipe,



The Ornate Radiator.

furnishing warm air to the flues which | led to the rooms heated. The drum was partly filled with water, and the steam pipe leading to the coil within the drum branched above its top, so that a portion of the steam would mix with the water in the drum, and the condensation and expanded water overflow into the steam pipe and return to the boiler. Eight of these drums measured 371 inches, and six 26 inches in diameter, all being 48 inches high, aggregating 825 of the 2-inch tubes, exposing 1700 square feet of air heating surface, and 550 feet of steam coil, exposing about 125 square feet of water surface. The heating surface was proportioned on the basis of 19 square feet per 1000 cubic feet of space for the halla and first floor, and 13 feet per 1000 cubic feet for the remainder, the total area heated being 125,000 cubic feet.

caused the aubatitution of cast Iron mains.

In an apartment building at Hartford, Conn., 120 x 125 feet, with annex measuring 80 x 80 feet, five stories high, an auxiliary heater to a hot water plant was installed by the Blackmore Heating Company of New York. This was arranged to utilize the exhaust and also the live steam from the elevator hoisting apparatus. A special heater was designed for this purpose, consisting of an iron cylinder 42 inches in diameter and 12 feet long and provided with diaphragms 1 foot from each ead which received the ends of 144 13-inch brass tubes 10 feet long, having a total heating area of 1173 equare feet. The flow main is connected with the top of one of the end chambers of the cylinder and the return main taps the bottom of the other end chamber, com-

munication being established by means of the 144 brass pipes, the surfaces of which are heated by steam, inlet and outlet connections being provided for the same. An intercepting pressure regulating valve is provided on the connection between the boiler and the inlet, so that when live steam is used the pressure can be reduced to correapond with that of the exhaust ateam. This apparatus is capable of heating the building in mild weather, but three No. 32 Perfect hot water heaters are con nected with the flow main, which is 8 inches in diameter, for use in cold weather. There are over 600,000 cubic feet of space in the building, heated with 9355 square feet of direct radiating and 2445 square feet of indirect radiating surface. In view of the fact that the main heating plant consists of hot water boilers the piping was done in the usual manner, and the auxiliary plant being operated by steam required no special piping for successful results.

#### HEATING NOTES.

THE GURNEY HEATER COMPANY, Boston, are issuing a new sign for distribution among the trade. The sign is embellished with a silver bas relief on a black background of their Gurney hot water heater at one side, while their steam heater is shown in the same style at the other side. Their address in silver letters is also given, and at the bottom of the sign is the inscription, "The Standard for Excellence."

THE EXETER MACHINE WORKS, 32 Oliver street, Boston, display in their showrooms a handsome selection of steam and hot water radiators, as well as heating apparatus. The foundry of this company is at Exeter, N. H., and has been steadily running turning out these goods.

THE ARCHAMBO, MARTIN & MORSE COMPANY of Minneapolis have filed amended articles of incorporation, changing the name to the "Archambo & Martin Company," and the general nature of its business to the manufacture of heating and ventilating apparatus.

D'Estes & Seeley Company, 29-33 Haverhill atreet, Bostor, manufacture the Cuttis engineering specialties. These include the Curtis ateam trap for return condensation to a drip tank, under a pressure of 200 pounds or with a vacuum; the Curtis return trap, by means of which the condensation is re turned to a boiler carrying a pressure of 120 pounds without the use of pumps; the Curtis pressure regulator, permit ting the use of various pressures at different parts of a plant from a high pressure boiler, and the Curtis damper regulator, adapted for regulating the fire to meet the requirements of the case. In addition, they carry a full line of pipe fittings and brass work needed by the pipe fitter.

THE SPERL HEATER COMPANY, Carbondale, Pa., successors to the Susquehanna Steam Heater & Mfg. Company of Susquehanna, Pa., have broken ground at Carbondale for the erection of a brick machine shop with boiler house annex. The company are organized with a capital stock of \$30,000 to manufacture the Spell patent hot water heater. C. E. Rettew, master mechanic

of the D. & H. Canal Company, is president of the company; A. D. Harding, secretary; A. P. Trautwein, tressurer, and Thomas McDonald, manager.

The American Radiator Company, 44 Oliver street, Boston, have arranged on their sample floor a varied and handsome line of radiators from which the dealer has no difficulty in making a pleasing selection for his customers. E. R. Pierce, the manager, has been taking a vacation at Belfast, Maine.

A 32-PAGE CATALOGUE of the Sunray steam and water heater is being sent to the trade by the J. L Mott Iron Works, New York and Chicago. Some explanation is given of the process of combustion and the efficiency of different kinds of heating surface, followed by a statement that the Sunray boilers are constructed to secure the greatest benefit from the heat generated by the fuel. The first cuts show the new vertical section Sunray steam and hot water boiler, followed by the "40 Series" Sunray, the horizontal section Sunray, with tables giving prices, dimensions and ratings. Other cuts show the smaller apparatus connected with large kitchen boilers which the house furnish, and a line of steam and hot water radiator valves, automatic air valves, altitude gauges, thermometers, pipe hangers and expansion tanks. The last page of the cover states that radiators from all the standard manufacturers can be furrished.

W. F. GILLING, formerly manager for Le Bosquet Brothers, Boston, has become associated with the New York office of the American Boiler Company, 94 Centre street, and will travel in their interests in the New England States, where he is well and favorably known both for his knowledge of heating and for his good fellowship.

THE CATALOGUE distributed by the Standard Radiator Company, Buffalo, N. Y., for the current year, is gotten up in an exceptionally neat and attraction forbion. He is a superior forbion of the superior forbion of the superior forbion. tractive fashion. It is bound in flexible brown paper with "The Standard Radiators" printed in gold on a green Radiators" printed in gold on a green background. The radiators themselves are illustrated by means of half-tone engravings printed in brown and show very clearly the artistic excellencies of these constructions. The first one shown is a three column radiator; then a two column; then a four column; then a three column; then loops of the different radiators; next, the New Standard direct and indirect. All these radiators are briefly described and full tables of sizes, dimension, &c., given. At the end the Standard indirect radiators are illustrated and descriptiona given. The final page is headed Nota Bene and gives the particulars to be observed when ordering goods.

B. D. DUGGAN will represent the Richmond line of steam, hot water and warm air heaters, and conduct a general contracting and heating business at 207 209 Lake street, Chicago.

#### OBITUARY.

A. BURTON PAXSON.

The firm of J. W. Paxson & Co. of Philadelphia, dealers in foundry supplies, have austained a loss in the death on July 31 of A. Burton Paxson, a member of the firm. Mr. Paxson was ill about nine weeks with typhoid fever. He was a bright young man and highly esteemed in his circle of acquaintances and by the trade throughout the country.

#### SCRAP.

RICHARDS & Co., 60 Union street and 47 Friend street, Boston, are importers and dealers in all grades of tin plate and sheet iron. They also carry a large stock of sheet copper, plain planished and tinned in various weights and thicknesses.

THE NEW CASTLE STEEL & TIN PLATE COMPANY, New Castle, Pa., recently added to their equipment two 18-foot boilers, 84 inches in diameter, and are now running six mills full.

It is stated that a tin plate company have agreed to locate in New Lisbon, Ohio, if the citizens at that place will secure to the concern a tract of land at a reasonable price, and then buy from them 300 lots at \$200 each. Four buildings are proposed, and 200 men are to be employed. Charles M. Bray, secretary and mechanical engineer of the Llovd Booth Company of Youngstown, Ohio, is representing the projectors in the preliminary negotiations. Others interested in the new venture are W. T. Graham, B. M. Caldwell and J. J. Holloway of the Ætna-Standard Iron & Steel Company, Bridgeport, Ohio.

WALLACE, BANFIELD & Co., LIM-ITED, operating the Ironda'e Rolling Mills, at Irondale, Ohio, manufacturera of tin and terne plate, are making some extensive improvements at their plant, which are expected to increase the present capacity about one-fourth. present equipment is being increased by the addition of one Mesta patent pickling machine, to be furnished by the Leechburg Foundry & Machine Company, Pittsburgh, and three new heating furnaces are also under ercc-tion. The old original sheet mill is being torn down and is being replaced by a frame structure covered with corlugated iron, which will be made as nearly fire proof as possible. The large engine is being repaired and a new cylinder will be added, 36 x 60 inches in size. A new fly wheel will also be put in, which will weigh about 60 tons. The pickling machines are being re-paired and other minor improvements are under way.

WE are officially advised that The Johnson Company, Johnstown, Pa., are not identified with the project of establishing a plant at Lorain, Ohio, for the manufacture of tin and terne plate.

An 8000-ton forging press is now in use at the River Don Works of Vickers, Son & Co., Sheffield, England. The shareholders, at the close of a recent meeting, were invited to inspect the working of this machine, and it is stated an ingot weighing 66 tons was taken from the furnace and conveyed to the press, under which it was swiftly and silently squeezed to the required proportions. When finished it will be 18 inches thick, and is ultimately to form one of the plates of the Russian war ship "Three Saints."

It is stated that some trials have recently been made in the Liege district in Belgium, with the "trueing up" in position of the rolls of sheet rolling trains which have become hollowed in the middle owing to constant use. Emery wheels have, it is said, been used for the purpose, the results having been successful.

# THE TIN SHOP.

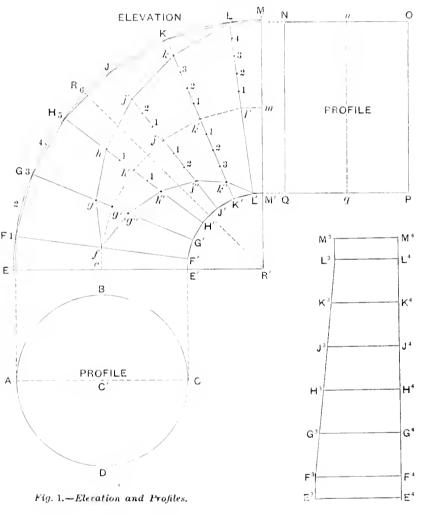
Rectangular.

From R. B., Philadelphia, Pa.— Please describe in The Metal Worker the development of a right angled elbow, rectangular at one end and round at the other, the change to be gradually developed in an elbow of seven sections. I will leave you to choose radius, proportions, &c.

Answer.—In Fig. 1 let A B C D represent the profile of round end and N

Pattern for Elbow, Round to | in the present instance five. From k' set off each way four spaces, as shown by k k' and k' k''. Set off from j' three spaces, as shown by jj' and j'j''. Continue this operation and connect the points f(k)  $\hat{h}$  g f, g'' h'' j'' k'' L', thus showing in side elevation the change from the rectangle N O P Q to the circle A B C D. To show a similar shape on the outer curve of elbow, draw any line, as E1 M1, in Fig. 2.

obtained creet perpendiculars, as shown. From E4 F4 set off the distance C' B of profile of circle, and draw E<sup>3</sup> F<sup>3</sup>. From M4 L4 set off the distance N n of profile of rectangle and draw M3 L3. Connect L<sup>3</sup> F<sup>3</sup>, thus completing the figure. The shapes on inner curve of elbow, as shown in Fig. 4, are obtained in the same manner as described for Fig. 2. The method for obtaining the patterns for sections E F F' E' and L M M' L' are the same as



М  $M^2$ ı ĸ J G<sup>1</sup> G<sup>2</sup> F  $E^{1}$ 

Fig. 2 -Shape on Outer Curve.

Fig. 3. - Hight on e m.

PATTERN FOR ELBOW FROM ROUND TO RECTANGLE.

O P Q the profile of rectangular end of the elbow. To obtain the miter lines the eighth circle E R has been divided into six parts and one of these parts set off from E, and a line drawn to R' gives the miter line for the first section. Two of the divisions are set off from F, as F G, and G R drawn, &c. Through the center of the elevation draw the lines c to m, and divide L l' into the number of parts there are pieces in the elbow subjected to the change in shape, From E1 set off the spaces E F, F G, to L M. As it is only necessary to show the half shapes, from M1 and L1 crect perpendiculars, in length equal to N n, of profile and connect same, as shown by M2 L2. Connect L2 F1, and from the points in E1 M1 creet perpendiculars cutting F1 L2.

For the hights of sections on c m of elevation, on any line, as E4 M4, in Fig. 3, starting from E4, set off the distances cfg'h', &c., and from the points thus

for an ordinary pieced clbow. method for obtaining the pattern for one of the remaining sections will beshown, which will indicate the method to be followed in the other sections. Then we will obtain the pattern for sectlon F G G' F'.

In Fig. 5, F G G' F' is a duplicate of section having similar letters in elevation. The shape F U F' in Fig. 5 is the half of an ellipse, which can be deacribed in any convenient manner. Uf of this figure is derived from C' B of profile, Fig. 1. From G erect the perpendicular G S, equal to G1 G2 of Fig.

M

H

G

F:

Fig. 4.-Shape on Inner

Curve.

F U F' into any convenient number of parts, and from the points thus obtained drop perpendiculars cutting G G' 2, and from G'erect another perpen- and F F'. Connect these points, as

> S IJ

Fig. 5.-Shapes an Miter Lines.

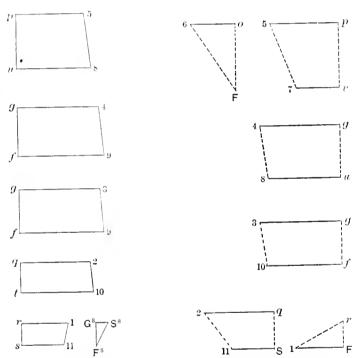


Fig. 7.—Sections Represented by Dotted Fig. 6 .- Sections Represented by Lines in Fig. 5. Solid Lines in Fig. 5.

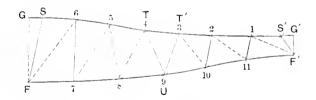


Fig. 8 .- The Half Pattern.

PATTERN FOR ELBOW FROM ROUND TO RECTANGLE.

points g and g' erect perpendiculars equal to G3 G4 of Fig. 3, and connect TT', as shown. Connect S T and T' S' by part of an ellipse corresponding with F U F'. Divide S T, T' S' and

dicular, equal to G5 G6 of Fig. 4. From | shown by the solid and dotted lines in G G' F' F. If the dlagram shown in Fig. 5 was cut out of cardboard, and G T T' G' were bent up at right angles on the line G'G; FUF bent in a similar manner on F F', the distance | surcharge of the rate of exchange.

between points in G T T G and F U F would be the same as if measured between similar points on the finished article. As this operation would not be convenient in practice, a similar result can be obtained by the use of sections. These sections are shown in Figs. 6 and 7. To construct the sections represented by solid lines in Fig. 6, proceed as follows: Draw the line F7 G7, in length equal to F G of Fig. 5, and from point G' erect a perpendicular, in length equal to G S of Fig. 5. Connect F' S', which gives the distance between points F and S. For the second section craw ro, in length equal to vo of Fig. 5, and make the perpendiculars o 6 and v 7 of section equal to lines having similar letters in Fig. 5. The other acctions are obtained in a aimilar manner. To construct the sections represented by dotted lines in Fig. 5, proceed as follows: Draw the line Fo of Fig. 7, in length equal to F o of Fig. 5, and from o erect the perpendicular o 6, equal to o 6 of Fig. 5, and connect F 6. For the second section draw v p, in length equal to v p of Fig. 5, and from points v and p erect perpendiculars equal to r 7 and p 5 of Fig. 5. Connect points 7 5, which give the distance between corresponding points in Fig. 5.

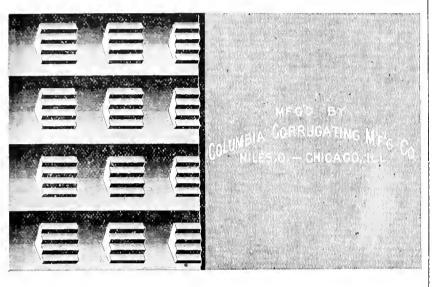
In Fig. 8, G G' F' F is the pattern of part of article shown by similar letters in Fig. 5. The distances represented by solid lines in pattern, as indicated by corresponding figures, are obtained from the sections in Fig. 6, and the diatances represented by dotted lines in pattern are obtained from the sections in Fig. 7. The stretchout of GSTT'S' G' of pattern, is obtained from G S T T'S' of Fig. 5, as the stretchout of F U F' of pattern is obtained from F U F' of Fig. 5. Then for the pattern shown in Fig. 8 proceed as follows: Draw G F of pattern, in length equal to G F of Fig. 5 or F7 G7 of Fig. 6. From G of pattern erect the perpendicular G S, equal to G S of Fig. 5 or G7 S7 of Fig. 6, and connect F S of pattern. From S of pattern as center, with 8 6 of Fig. 5 as radius, describe an arc, 6, which intersect with one struck from F of pattern as center, with radius F 6 of Fig. 7, thus establishing point 6 of pattern. Then with radius F 7 of Fig. 5, from F of pattern as center, describe an arc, which intersect with a second arc struck from point 6 of pattern as center and F 7 of Fig. 5 as radius, thus establishing point 7 of pattern. Continue this process until the various points indicated ln pattern are located. Lines drawn through the points thus obtained, as indicated by G S T T' S' G' F' U F, will be one half of the required pattern. The other half can be obtained by duplication or by a repetition of the above process.

The Chilian Council of State has decreed that after December next customs duca are to be paid 25 per cent. in gold and the remainder in paper, plus the

# ROOFING AND CORNICE.

The Columbia Steel Lath.

The secompanying illustrations show the appearance of the Columbia patent fire proof steel lath, manufactured by the Columbia Corrugating Mfg. Company, Niles, Trumbull County, Ohio. Fig. 1 is a section of the lath, part of E. B. Badger & Sons, 63 High street, Beston, Mass., are one of the old coppersmith and sheet metal working houses of Boston. They manufacture copper boilers of a high grade, adapted for plumbers' use, jacketed kettles, coils and a general line of copper work. In addition to this they do a large busiin a depressed and neglected condition, is said to have revived considerably of late under the British rule. The number of active mlnes and of miners is rapidly increasing. The mines form a portlon of the great stanniferous belt which stretches along the granitic backbone of the Malay Peninsula.



The Columbia Steel Lath .- Fig. 1.-Lath Partially Flastered.

which is plastered, while Fig. 2 is the back of the lath, showing the way the plaster keys through the slot. The lath is made 27 inches wide by 48 inches long, containing 1 square yard, and is thus easily handled by one man. It is a steel sheet crimped, cut and pressed in form at one operation. The shallow V-shaped corrugations are 1½ inches wide, and the locks for the mortar are punched up at intervals of ¾ inch apart and are ¾ inch wide. The small crimps on these locks take up the surplus metal on them, and at the same time they greatly stiffen the sheet. The laths are put on the building across beams and joists. This lath can also be used on cornices, columns or wherever a curved surface is needed.

#### FLASHINGS.

Chas. W. Carll of the Trenton Architectural Cornice Works sends us a notice of the removal of the works to the southwest corner of Warren and Front streets, Trenton, N. J.; the building has been enlarged on account of the demands for building sheet metal work which has been increasing with them. The house also do a large business in hot air furnace work and tinning.

J. M. ROBINSON & Co., Cincinnati, Ohio, have just closed contract with the newly organized company, the Youngtown Iron & Steel Roofing Company, to supply them with an entire outfit of roofing machinery covering, corrugating and crimping machines, presses, dies, cornice brake bending machines, &c.

ness in architectural copper and galvanized iron work.

THE BOURLIER CORNICE & ROOFING COMPANY were incorporated July 30, at Louisville, Ky., with a capital of \$5000 for the manufacture of galvanized iron

The Indiana Natural Gas Supply.—The annual report of State Gas Inspector Jordan, made public on the 1st inst., contains much that is interesting. The amount of capital invested in the State, due to the discovery of gas, he says, is \$300,000,000, and the influx of investment still continues. The gas has been drawn upon so heavily that there is now little more productive territory to be had. He says that already the limit of supply has been reached, and that the initial rock pressure has fallen from 350 pounds to 240 pounds. Many wells have been abandoned and the end is only a question of time. The report points out that during the, first four years of consumption the waste of gas was equivalent to \$20,000,000. The waste still continues in the domestic use, which ought to be dispensed to the consumers in meters instead of through mixers. Cheap piping and cheap connections have already caused heavy waste.

The republic of Paraguay is desirous of concluding a treaty with the United States similar to the treaty now existing between Brazil and this country.

R. D. Servoss, 21 and 23 Centre street, New York, has published a sec

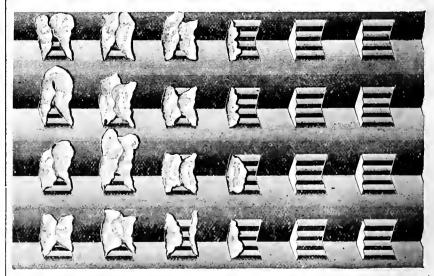


Fig. 2.—Back of Lath.

and copper cornices, skylights, &c. The incorporators are Emtle and Alphonse Bourlier, Charles Hansley and Rudolph G. Dorn.

The tin mining industry of Mergul, Lower Burma, which has been for years tional road map of Kings and Queena Counties, N. Y., giving the good roads. The work is in pocket size, and while more particularly intended for cyclists, the detail and care used in its compilation recommend it to the general public as well. A key map admits of ready reference.

Progress in Galvanizing.

To correct any misapprehension that may arise from an article published in The Metal Worker of August 4, we print below a letter received from the McDaniel & Harvey Company, Philadelphis, through their president, II. Whiteley:

In The Metal Worker of August 4, in the article headed "Progress in Gal-vanizing," descriptive and laudatory of the Baylisa apparatus, we notice the following: "One of these machines is now being placed in the works of the oldest galvanizing concern in this country." As our concern is universally acknowledged the oldest galvanizers of sheet iron in this country, having begun in 1852, there can be no doubt but that we are the concern referred to. When the article was written it was doubtless true that one of these machines was being placed in our works. We gave the machine a trial and rejected it for inefficiency and non-fulfillment of the claims made for We would never have made any public announcement of this fact were it not for the unmistakable but entirely unsuthorized public reference to ourselves in that article, and the attempt thereby to make capital for the machine out of our apparent indorsement and to use us as an advertisement. This compels us to publish the results in order to relieve ourselves of all complicity in that statement, and that no one may be led to purchase the machine under the belief that we are using it. The facts are that we made a trial of one of these machines which Mr. Bayliss erected in our works on approval. We found its performance fell short of the guarantee in speed, output, quality and appearance. We notified Mr. Bayliss to that effect and took out the machinery, which we now are holding here subject to his order and awaiting shipping into his order and awaiting shipping instructions.

The "Architects' Directory for 1894" has just appeared from the press of Wm. T. Comstock, New York. It is put up in convenient shape and bound in red boards with gilt stamp. The work bears marks of careful preparation and sims to glve, classified by States and towns, all the architects in practice in the United States and Csnsda. In giving architects' names the membership in the architectural societies is indicated by figures in brackets following each name. A selected list of the principal dealers in building materials and appliances is also given, which will be found useful to architects. To manufacturers and dealers the list of architects will be found of great value in addressing circulars and sending samples. The work is well got up, clearly printed and of convenient size, and will be of value to architects and the building trades. The price is \$1.

In the sinking of the powerful barbette battle ship, "Chen-Yuen," and the capture of the steel cruisers "Chin-Yuen" and "Ching-Yuen," by the Japanese, the Chinese have lost the flower of their navy and cannot now hope to cope with the Japanese at sea. The details of the naval battle between the two fleets, when received, should throw some interesting light on the capabilities of the modern ironclad in war

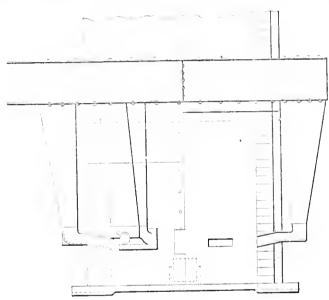
An Economical Cupola.\*

BY F. B. WHITCOMB.

At the May meeting of the Western Foundrymen's Association a letter from the writer was read in which was given a short description of the workings of a cupola erected under my directions, at Beloit, Wis., for the Eclipse Wind Engine Company. The cupola was Engine Company. The cupola was built in 1885, and when first lined was bricked up to 40 inches, but as the heats increased in size the brick was carried up to 45 inches. For blast a No. 6 Sturtevant fan was used, placed about 12 feet from the cupola. The air pipe 12 feet from the cupola. ran straight through to the air chamber around the cupola, and was considerably larger than the outlet of the fan. The air chamber was several feet above the tuyeres, and the pipes running from the air chamber to the tuyeres were 11 x 10 inches at the first point, and graduated down to 5 x 10 inches at the tuyeres. The tuyeres were four in tuyeres. The tuyeres were four in number,  $2\frac{1}{3} \times 9$  inches, the longest way horizontal. The tuyere on the right

than are used generally. They will let the air escape freely, and show less pressure on an indicator than a cupola with less tuyere surface that would confine the air more. Light coke does not require as much blast as heavy coke. I have used but two kinds of American coke that I could rely upon: Connellsville and New River. Connellsville is heavier than New River and will stand more blast. I used Enlish coke one year in San Francisco, and found it to be a good deal like New River, and an excellent fuel.

My 4-ton heats usually took 40 minutes to melt from the time the blast went on until the bottom was dropped. The larger heats ran about 7½ tons an hour. The iron would commence to melt in about six or seven minutes after the blast went on. For the bed, I filled to 23 or 24 inches above the tuyeres with coke, then put on 2500 pounds of iron. The balance of the charge was from at to seven shovels of coke to about 1200 pounds of iron. The cupols was fired about 1½ hours before the blast went on. In heating, when the fire was



THE WHITCOMB CUPOLA.

hand and in front was placed 13 inches above the bottom of the cupola, and the other three 131 inches above, so that the man that tapped out could watch the lower tuyere should at any time the iron be near it. In running through the lining the tuyeres were inclined a little toward the bottom. The cupols was 10 feet 6 inches long from the bottom to the bottom of charging door, and the slag was about 11 inches below the tuyeres. I superintended this foundry for four years and a half, and ran the cupola for a little over three years of this time. The heats varied from 4 to 16 tons, and during one year of the time I was in charge the average melting for the year was 115 pounds of iron to 1 pound of coke. The best melting for a single heat in that time was 14 to 1. The work done was in wind mill castings, pulleys and engine castings—from light snap work to castings weighing more than 5 tons. There was no indicator attached to tell the blast used.

I do not think we can use the same amount of blast pressure on all cupolss. Take, for instance, the cupola described above, with air pipe and tuyeres larger

atarted, coke was put in to cover above the tuyeres, and when that was fired through the balance of the bed was put in and charged until the cupola was full. In charging, I am always very particular to get the coke as even as possible. If there is any difference, I favor the sides instead of the center with the most coke. I am satisfied that in many foundries more coke is used than is necessary. Where too much coke is used, iron will not melt as fast, and to melt iron with little coke, it must be done quickly. Use enough to make the iron hot, and after that is done every pound added does more harm than good.

In conclusion I will state that the best feature of this cupola was in the free way it received the blast. From the experience I have had and were I to put up another, I would make a change in the tuyeres, making them 2 x 12 inches instead of 2½ x 9 inches, to give more space around the aide for the air to enter and be distributed inside more equally. For larger cupolas than the one I have described I would use aix tuyeres instead of four. It is better, also, to have a little more blast than is necessary than not to have enough; for it is always easy to shut off some while it is hard to increase it.

<sup>\*</sup>Read at the monthly meeting of the Western Foundrymen's Association, held in Chicago, July 25, 1894.

# STOVE TRADE NOTES.

Philadelphia Stove Trade.

There is very little change noticeable in the condition of trade in this market. Orders from salesmen are coming in very slowly and are very small in size. It frequently happens that a salesman will visit several towns without securing an order. It cannot be said, however, that the outlook is bad. Buyers acknowledge the fact that their stocks are extremely small, but state that they will not place orders just at present. The probability is that the majority of orders will be held until the end of the month or later. There is a noticeable disposition on the part of retailers to adhere as far as practicable to the hand-to-mouth principle of buying indulged in last year. Much dauger is foreseen in this plan by shrewder and older merchants, who, while perhaps holding off their orders for a few weeks longer than usual, will manage to secure a prominent position on the manufacturers' order book for their orders covering a full line of goods. The probability is that the months of September and October will be busy ones for the manufacturers, if the postponement of orders continues as at present, and a speedy settlement of the tariff bill would materially increase the activity. Meanwhile the production is very light, considerable shutting down being reported in July, and the stocks in the hands of manufact. urers are not nearly so large as usual. Ranges are in fair demand, and furnaces seem to be moving pretty well, but the volume of business is small in comparison with former years. Heating stoves seem to be out of the race just now, and form the major part of the postponed orders. A leading manufacturer here is this season introducing steel ranges, and is making a bid for dealers' patronage in this line with encouraging prospects of success. Trade with the South has been very active during the past few weeks, owing to the war in freight rates fought by the different The rates to carrying companies. Southern points have been ridiculously low, and buyers have not been slow to take advantage of them. It was expected that a new tariff of rates would come into effect on August 1, but at present the low rates are still in force. Collections show little, if any, improvement, but it is some satisfaction to find that they get no worse.

few days will bring forth, but that we are on the eve of a change for the better no one doubts, and the turning like the such as covers, centers, legs, &c., where two, four or six patterns would be required on the floor, one or two would do for the bench. There would recently, are trying to organize a co-It is impossible to surmise what a

point centers on the passing of a tariff bill of some kind, and thus ridding the situation of a great uncertainty.

#### Bench Molding in Stove Shops.

BY BENCH MOLDER.

Managers of stove shops are the last of all in the leading branches of the foundry business to discover the great utility and economy of bench molding. In discussing practice and methods with shopmates I find that few even of bench molders are aware that this method has any advantage over floor work. Floor molders believe that the only advantage the employer can derive from it is to get a piece made for less than it would cost on the floor. Foremen of stove shops are always floor molders, who as soon as promoted proceed to practice and enforce the views they had formed and the knowledge they possessed as floor men. This has two results: 1. It confirms the belief of the floormen that they were right, that benches are only good to enable employers to cut prices. 2. Bench employers to cut prices. 2. Bench molders who are good mechanics soon seek work elsewhere, leaving only the poorest hands to maintain the reputation of the craft in stove shops.

Under these conditions bench work and bench molders fall into disrepute, both in the office and in the shop. In other trades branches and subdivisions are distinguished by placing a man in charge who is well up in that particular line. Bench molders, however, are not recognized in this way, but are left to the supervision of the general foreman of the foundry, He is, as I have said, always a floor molder, and although he may be an excellent mechanic and a most capable foreman, he lacks the parfully competent to superintend the de-tails of banch work. No one but a tails of bench work. No one but a well trained bench molder is qualified to decide what work can be made best on the bench, best methods of "boarding" work and numberless other small questions of detail.

With no practical experience and no settled policy to guide him, the foreman disposes of these questions as they occur, in a haphazard way, sometimes on the advice of one bench molder, then of another, but more often according to his own notion. This is why it is so often noticed that good bench jobs are on the floor while jobs that would be good floor jobs but poor bench jobs are

on the bench.

Prices of molding out of the question, I claim that bench molding has at least five distinct advantages over floor work on jobs common to both. 1. To begin with the first cost of getting a job in sand, snap flasks and other bench equipment should not be reckoned in this as they are, like the cupols or the walls of the shop—permanent fixtures. On jobs that may be made on either bench or

be not only less to make but less to handle, to store and to care for. only other expense, after the patterns come from the fitters, is the follow board, and with rare exceptions this should be a "hard match" made by the molder. Drought and moisture, as well as extremes of temperature, sffect a wooden follow board, especially on intricate work, causing vexatious delays while the carpenter makes the necessary change, while a "bard match" properly made is practically indestructible and never affected by atmospheric conditions, no matter how extreme. T cost of a "hard match," 75 cents. Total a ten-a-day job the ratio would be about ten to one in favor of the bench, increasing with the number of flasks required.
2. The comparative ease with which

a force of bench men may be handled as against an equal force of floor men.

Snap 3. Durability of equipment. Snap flasks with ordinary care and a little repair will last a lifetime. They may have to be replaced by improved flasks sometime, but not because they are worn out. Most stove men know how long floor flasks last. They are exposed to atmospheric changes when not in use, even when kept under shelter, and to ill usage by the molders when in

4. The large amount of storage room required for floor flasks, owing to the big surplus necessarily kept on hand. The few surplus flasks and bottom boards for benches are always kept on the molders' floors, no storage room being required except for the matches, and these do not require as much room as follow boards for the floor.

5. The facility with which a change may be made from one job or lot of jobs to another. Every job on every bench floor in a shop might be changed any morning and another lot started and yet every man have his floor "up" at blast time. This would be best appreciated in busy times. If a man is off, owing to sickness or other cause, and his work falls behind, the foreman distributes his jobs around among the other men until he returns; thus the employer gets the work he wants, the other men suffer no inconvenience and the man returns to his work the way he left it. What a difference between this and the existing practice in floor

It is true, as very clearly shown in a late article, that efficiency in workmen is desirable and of positive advantage to themselves and their employers. Efficient methods are not a whit less advantageous nor less capable of producing profits, and it is my belief, founded on observation and experience during ten years' work as a stove molder, that in all shops where a thor-ough and systematic trial is given to bench molders and molding under the direct supervision of competent bench molders, the increased profits will prove it to be an efficient method.

IT IS REPORTED that the employees

operative company to operate the works. It is stated that 22 of the employees have agreed to take stock, and a number of others have expressed a willingness to take shares on 10 per cent. reduction from their wages.

### C. Emrich,

Columbus, Ohio, has just issued his 1894-95 eatalogue and price list of Florence stoves and rauges and Brilliant heaters. The volume contains 56 pages and is bound in paper covers, the first page of the cover bearing the trademark and address of the company. In an introductory note the statement is made that a number of new and modern ranges, cooks and heaters have been added to his line, combining elaborate ornamentation with the latest improvements and conveniences necessary for satisfactory operation and durability. The Ideal Florence is a handsome new range of the sheet flue type, for either coal or wood, the oven being 11 inches higher, it is said, thau is usual in this class of range. The castings are smooth and the flues extra large and accessible, provision for cleaning being made in both the front and side. It is also provided with end ash pit, hot water reservoir, high closet with revolving front and nickel plated oven panel with tile center. The Model Florence is a neat two-flue cook stove, adapted for burning any kind of coal or wood, and is made with incased or bracket reservoir and warming closet. The Queen and Royal Florence ranges are made both right and left hand, of the sheet flue construction, and are brought out to meet the demand for ranges of moderate cost. The Prize Florence is a new flat top cook stove with feed chute for soft coal and is made with bracket reservoir. These are followed by the New Florence, Fioral and the Magnolia coal cook, 13,000 of which are said to have been sold. The Brilliant surface burner base heater, a handsome square stove, is the leader of the heating line, followed by the Brilliant Franklin and the Brilliant Oak, which is the latest addition to the line of Brilliant heaters. These are followed by the Brilliant revertible flue and direct draft heater; the Open Firelight Royal, an oven parlor stove; the Olive, for coal and wood; the Report and Cora, cannon stoves; the Agate, round soft coal stove; Ironsides box stove and the Scout, two hole dining room stove.

### The Cortland Howe Ventilating Stove Company

of Cortland, N. Y., are issuing to the trade a 44 page catalogue, bound in pale blue covers, the trade-mark and address of the company appearing on the first page of the cover. The opening pages are devoted to an enumeration of the merits for which medals have been awarded their goods, terms and reasons why the Cortland Howe ventilator should be purchased by all wishing economical heaters. This is followed by cuts of the stove showing its general appearance, its construction and operation being indicated by sectional illustrations. Various designs of the stove are shown, the No. 19 being a powerful heater designed for use in halls and large rooms. The goods next noted are the Cortland wood ventilator and the Cortland Gem, the latter being a full nickeled square stove and provided with a ventilating system differing somewhat from the Cortland Howe principle. The Be-at-us is a new

medium priced base burner with full | return flues and made always as double beater. The application of the Cortland Howe as a double heater is illustrated by means of an engraving. The different atyles of grates used are illustrated, with special reference to the ball bearing and spherical center features. The Franklin cottage and Golden Star cottage are handsome wood stoves of the return flue type; the Cortland oak, a new stove of handsome design and elegant proportions; the Cortland cottage, for hard and soft coal; the Golden Star, a round base burner with revertible flues, for hard coal; the Oak ventilator, arranged to take cold air from the floor and discharge it highly heated from the top of the stove, and designed to operate either as a circulator or double heater, are referred to in the order named. The next few pages give the sizes of the fire pots, heating capacities of the stoves and directions for ordering repairs. Accompanying the catalogue we find a number of differently colored aline bearing testimonical ently colored slips bearing testimonial letters of the superior operation of the stoves turned out by the company named.

## Cribben, Sexton & Co.,

Chicago, Ill., have just mailed to the trade their 1895-95 catalogue. volume is bound in dark green covers, a gilded globe bearing the inscription "Universal Stoves and Ranges," as well as the address of the company and the date being embossed on the first cover. Their various branches, foreign agencies and Chicago address are printed in gilt on the back cover. The opening pages are devoted to views of their works at Chicago and agencies at San works at Unicago and agencies at San Francisco, Portland, Orc., Denver, Min-neapolis, Los Angeles and Salt Lake City. The first of their goods noted is the Regal Universal range, a construc-tion of handsome design and referred to as possessing "all that modern science in stove production has brought forth for convenience, durability and effi-ciency." The Peerless Universal and the Modern Universal come next, embodying all the good features of the Regal Universal, but being of smaller size; then the Welcome Universal and Umpire Universal, which have established a reputation with the trade; the Superb Universal, for burning soft coal and wood and embodying all the modern features of convenience and utility; Novel Universal and City Universal, new four and six hole ranges, possessing much to recommend them to the dealer; the Apollo Universal and the The Planet Universal wrought steel range is referred to by the manufacturers as having been brought out to meet a well-defined demand and possessing all the features that go to make up a first-class construction. Following come the Pacific Universal, Majestic Universal and Victor Universal ranges. The Imperial Universal, Sterling Universal, Harvest, Hummer and Prize Universal are included in their line of flat top cooks for coal and wood, while their line of wood cooks is represented by the Prize Universal, Majestic Universal, Domestie Universal, Elegant Universal, Western, Columbia, Dandy and the Eclipse supplied with elevated The Universal Hotel cook, for coal and wood, is referred to as being of large capacity. The Radient Universal, a high grade aquare base burner of elab. orate design and handsomely nickel plated, is claimed to embody features differing from all constructions previ-

ously employed for heating. The Cheerful Universal. Royal Universal, Treasure and Hero come next. The goods next in order are the Jewel Universal, a hard coal surface burner of the return flue type. made with planished steel body: the Universal Oak, leading the line of Oak stoves: the Model Oak and the Live Oak. Wood heaters and cannon stoves are then referred to, and then come the Ideal Universal, a haudsome cottage parlor stove for wood only, the Universal Oak and a line of Todd and hox stoves. The close of the volume is devoted to farmers' boilers, sugar ketties, hollow ware, warming closets, high closets, &c., together with instructions for ordering repairs.

### Bergstrom Brothers & Co.,

Neenah, Wis., distribute a supplementary catalogue of Royal atoves, ranges, furnaces and hollow ware of their manufacture, in which is to be found a line of stoves which, in connection with those presented in their regular estalogue, they say make as complete a line of cooks, ranges and heaters as can be found. Beginning with the Casket range, for coal and wood, a handsome apparatus made in various styles and sizes, the volume presents the Emblem range, for coal or wood, likewise shown in various styles, and the Ensign range, similarly illustrated. Then come illustrations of the deflecting damper, the operation of which is carefully described. The Medal range, for wood, follows, with four illustrations; then the Axtell, for coal or wood, and the Minerva, for wood. The parlor aboves include the Elmhurst, New Elmhurst, Royal Oak, Park Oak, Tacoma, Cameo, Amber and Spark. The Emperor, for wood or soft coal, with drums, is likewlae illustrated, as well as the Prince, a cheap construction for wood. The eatalogue is tastefully printed and bound in flexible cardboard.

# De Haven & Co., Limited,

Allegheny, Pa., send out a catalogue Allegheny, Pa., send out a catalogue that is especially pleasing, coming from a dingy city. It is a light and tastefully covered pamphlet of 70 odd pages, giving an account of their extensive line of goods. The cover, of cardboard, is impressed with an exceptionally handsome conventional design printed in purple ink and bearing sign, printed in purple ink and bearing within a foliated panel an inscription relating to the Cinderella stoves and ranges. Beginning with an aunoucement to the trade respecting the grates furnished with the stoves and ranges, the superior quality of their fire brick, &c., the catalogue itself opens with an account of the Royal Cinderella range, which is an entirely new high finish, first class range for hard or soft coal or wood and made with fire box at either the right or left hand end. This is followed by the Royal Cinderella, a somewhat more elaborate construction, shown in two styles. double oven range is a substantial and attractive article. The Cinderella Kitchener, for hard or soft coal or wood, is next illustrated in four styles, and then the Queen Cinderella and the Cinderella portable range, in five styles. The Lady Cinderella, in two styles, completes the assortment of ranges. pietes the assortment of ranges. The cook stoves, which embrace an extensive line, include the New Cinderella, Cinderella C, Fairy Cinderella, Princess, Cinderella A, Allegheny, Cinderella B, Virginia and Keepsake. The Cinderella portable range is also included in this section. The parlor heaters are next taken up, with the Magic Cinderella, Cinderella Oak, King Cole and various styles of cylinder stoves. Franklin stoves of different design are illustrated, and then come a number of cheap heaters and also laundry stoves. At the close reference is made to hollow ware, natural gas burners and several miscellaneous articles.

### He Wouldn't Have the Stove.

L. M. W.

He was a shifty old farmer who believed in pleasing his eye when it cost him no extra money. He had dickered and finally loaded up a Todd stove, and drove down the street to another stove store, where a second Todd stove struck his eye. He stopped his team, went in, looked at the stove and concluded he would a good deal rather have it than the stove in his wagon. He got into his wagon and drove back where he bought the first Todd, and stated the case, but as the dealer could not buy the other stove, and had been to all of the trouble of getting the first one ready and loading it up, he said he would not refund the cash and take the stove back, as it was as good as the other stove and he would guarantee it. The old man said if it was guaranteed he reckoned that he couldn't growl about the bargain, though he liked the other stove better. He returned in a few days and stated that every time he made a fire the stove "leaked," and if it wasn't stopped he intended to return the stove and get his money. The dealer said he would drive out and make it work, but after two unsuccessful attempts he was told that the family wanted fire, and as the stove was guaranteed he thought the dealer had better take it home with him, and as he "thought" it with some force it was taken away. When the farmer was in town he called for his money and took home one of the other stoves. After a short time the farmer was asked how the other stove worked, and he said, with a chuckle, "as pretty as a field of ripe oats." That chuckle excited suspicion, and finally, though the favored stove did not leak, it leaked out that the old man had stowed away some ice in the first stove and used the complaint of leakage to get rid of it so he could buy the stove he wanted.

## ODD PLATES.

CHARLES E. CLARK, 23I to 247 Newberry avenue, Chicago, has issued an extensive catalogue for the season of 1894-95. Mr. Clark claims to handle the largest assortment of stoves in the market, comprising the Radiant Ilome line of ranges, base burners, oaks and parlor heaters, the Barstow line of ranges and surface burners, the Garnet line of four and six hole ranges, the Born steel plate French ranges, a complete line of lanudry and tailor stoves, the Wolf gas cooks and heaters and a great variety of low priced goods. The catalogue covers 112 pages. The ranges illustrated are the Radiant Home, Bono, Wren, New Jockey, Chester, New Rocket, Model New Era, Niagara, Bright Garnet, Model Garnet, Paragon B, Crown Bay State, Grand Bay State, Art Bay State, Ideal Prize, Columbia Prize, Prize Garnet, all of which are cast iron constructions, and the Royal and Born steel ranges. The Born ranges are shown in a variety of styles and sizes, with 4, 6, 8 and 10 cooking holes.

The Astor range is a new departure in a combination coal and gas range, consisting of a coal range with a gas stove attachment which folds up under the high shelf over the range and can be used either in that position or when lowered, and either as an assistant to the range or alone. The cook stoves shown are the Clinton, Magic Pearl, New Magnolia, Magic Prize, Titan, Topaz, Bermuda, Peerless Prize, Magic Perles Farmer, Magic America, Magic Parlor Cook and the Wolf gas table cooker. The heaters are the square Radiant Home, round Radiant Home, Home, Radiant Parlor, Radiant Oak, Flag, Flirt B, Sparrow, Haverford, Gem Bay State, Hub Oval Parlor, Bay State Oval Parlor, Hub Heater, Jewel Hub, Hub Hall, Barstow Hall, Boston, Envoy, Vlolet, Pavilion, Favorite, India, Keystone, Perfect Prize, True American, Magic Columbia, Victor Prize, Magic Oak, Jr., Franklin Pride, Magic Franklin, Fire-side, Laurel, Hub Franklin, Magic Garnet Viking Mammath, Magic Cornet Garnet, Viking, Mammoth, Magic Cottage, Maple Garnet, Magic Irene, Magic Light, Cottage Prize, Garnet Parlor, Wonder, Saxon, Alert, Senator, Etna, Boomer, the Radiant Home open gas stove and the Wolff gas radiator.

THE CLEVELAND FOUNDRY COMPANY, Cleveland, Ohio, issue an 1894 catalogue of gas heating stoves manufactured by them under the general name of Puri-These stoves are made both round and aquare in pleasing designs and in aizes adapted for heating rooms of different sizes. Particulars as to price, size and consumption of gas per hour accompany each stove. A revertible flue gas heater is also referred to, for use with either natural or manufactured gas, as well as an open reflecting stove. The same concern also issue the fall and winter catalogue of their Puritan oil heating stoves. It is made up of 12 pages, on which stoves of different deaigns are shown. Accompanying each cut are the dimensions of the stove, capacity of the tank and the length of time atove will furnish heat. All the stoves are provided with their improved brasa burner and the goods are said to be well made throughout. Reference is also made to the importance of good wicks, which can be supplied by the company named, being specially made

A FOUR-PAGE CIRCULAR of the Paragon steel furnace is received from Isaac A. Sheppard & Co., Philadelphia. The first page is devoted to an enumeration of the features of the furnace and the second and third pages show the furnace with octagon base and with round base. A feature of the last page is an account of the experience of one of their customers with the furnace. A number of testimonials speak in high terms of its operation.

THE PORTSMOUTH STOVE & RANGE COMPANY, Portsmouth, Ohio, are sending out a four-page circular of their Mogul furnace, new this year, with a 19½-inch fire pot, 32-inch casing and weighing 800 pounds, which is presented as a small furnace of great durability.

IT WAS A DULL DAY in the store. Customers were tew and far apart. The manager, who had grown gray in the stove husiness, was a man of imperturbable good humor and vivacious spirits, and never permitted himself to become blue over slow sales. Having so much time on his hands he amused the occasional caller by a new trick he had learned when on a recent visit to Boston. It was an optical illusion, of

a character which was sure to interest and amuse, and if it didn't always result in the sale of a stove it at least cultivated a spirit of sociability. The trick was as follows: Place three silver dollars in this position—

 $\bigcirc$  C

 $A \bigcirc \bigcirc B$ ,

Now, assuming that a line is drawnfrom A to B, thus—

л О----ОВ,

the question is asked, where must the coin C be placed so that its lowest point will be equidistant from A and B, forming a triangle of equal sides? It will almost invariably be found that coin C will be placed too close. The eye is confused in the measurement of the space across the faces of the two lower coins by the space between them.

THE PORTSMOUTH STOVE & RANGE-COMPANY, Portsmouth, Ohio, write that owing to announcements made in these columns they have received many inquiries concerning their Model-wrought steel ranges, several from large importing houses in London, England. They conclude their letter with the statement that it pays to active time.

The Baxter Stove Company, Mansfield, Ohio, advise us that they have added to their line of Round Oaks thisseason the Banner Oak, a very handsome production with all cast jacket, beautiful in design, their patent Ventiduct or hot air pipe being embodied in its construction. Three sizes are made, Nos. 44, 46 and 48, for either coal or wood. To their line of cookshas been added flush side shelves and a number of other minor improvements for the fall trade. The company's traveling representatives are covering the territory included in the States of Minnesota, the Dakotas, Iowa, Michigan, Indiana and Ohio thoroughly.

A HALF-TONE ENGRAVING of the Lehigh range shows a very handsome piece of kitchen furniture on the first page of a four-paged circular from the Lehigh Stove & Mfg. Company, Lehigh, Pa. The inside pages present logical reasons for making a leader of this range, and the last page is a letter from "Johnny" to his "Pop" that is well worth reading.

In the restaurant and kitchen department of the Smith & Anthony Company, Boston, steel ranges are displayed adapted for various requirements, as well as pastry ovens, jacketed kettles for steam cooking, ccfice urns and a varied line of heavy copper and tin cooking utensils employed in connection with hotel kitchens.

THE JOLIET STOVE WORKS, Joliet, Ill., send us their card calendar for the month of August. The card bears a half-tone engraving of Moore's Air Tight Heater, and special attention is called to the dates of the patents under which this stove is made.

WE ARE INDEBTED to the Peninsular Stove Company, Detroit, for a copy of their catalogue supplement for 1894 relating to improvements and additions to the Peninsular line for this season. The first goods noted are the Peninsular wrought steel ranges, ten styles of which are shown; then come the Home Peninsular range, a handsome cast iron construction shown in four styles. The Marvel Peninsular range follows; then the Loyal Peninsular, Rival, Radiant

Peninsular, the latter being a handsome parlor stove, and also the air-tight Peninsular, an illustration showing this latter construction without the casing. The Oak Peninsular is the last noted in the pamphlet. Interleaved in the catalogue are slips printed in red announcing that they manufacture a complete line of hot water and warm air furnaces, and that the handsome high shelf, which will fit any Peninsular cook or range, can be had at a low price, which is quoted, and other interesting announcements.

A MINIATURE MAIL BOX comes to us by mail from the Michigan Stove Company. It is attached to the reverse side of a card. On pulling up the lid of the box circulars are disclosed, one of which gives the exact location of the Chicago salesroom and offices, and another ahows the patrons of the com-pany the extent of the latter's national advertising system and how to take advantage of it in reaching local trade.

IT HAVING BEEN INCORRECTLY stated in press dispatches from Chicago that the Chicago Stove Works, Chicago, suffered severely by a recent fire in their vicinity, the company inform us that the report is a mistake, as they have suffered no loss whatever either by fire or water. They say, however, that they had a very close call, which gave rise to the statement in the newspapers.

THE WESTERN STOVE MFG. COM-PANY, St. Louis, Mo., are sending the trade pictures of their Delmar base heater for wood which is made both plain and full nickeled. It has a reverse draft which causes the gases to pass twice around the stove increasing its heating power and enabling a fire, it is said, to be kept 36 hours with wood.

THE WEIR STOVE COMPANY, Taunton, Mass., send out to their friends in the trade a pretty circular as the Glenwood Announcement for 1894, in which they ask the trade to wait for the Glenwood man, and say further that new Glenwoods have been added to the family for the season of 1894. The Grand Glenwood square parlor is a sur-face burner which they specially allude to; also their Glenwood parlor, a round indirect draft stove; the Daisy Glenwood parlor is referred to and briefly described. They add that they are now putting steel radiators on their whole line of furnaces so that they can be supplied with either cast or steel radiators. Combination heaters for hot water and hot air is another line that has just been completed. Of further interest to the trade is the haudsome aouvenir which they are distributing with the an-nouncement. It is a leather card case suitable for the vest pocket, neatly made and finished and containing four pockets for money (if any of the stove men happen to have it this year) or for Within is a calendar with a few pages of interesting information and then blank pages for memoranda.

FERRIS & Sons, 813 North Twentyfirst street St. Louis, Mo., distribute circulars relating to the Queen wood It is a sheet iron construction of oval shape, and la described as the only stove with a draft on top. From a broken view it appears that the smoke flue extends down inside of the store. The advantages alluded to are the small amount of kindlings it takes in starting a fire, and the great heat it gives out. Special emphasis is laid upon the statement that no ashes can get on the floor.

THE ANNUAL CATALOGUE issued by J. A. Comstock & Co., Tenth and Hick-

ory streets, Kansas City, Mo., is a convenient sized pamphlet of 80 pages, bound in green paper, with embossed The catalogue and price-list gilt title. relate to stoves, ranges, hollow ware, &c., and present illustrations with full descriptions of an extensive line of goods of this sort. It is the tenth annual catalogue of the concern, and as the publishers mention, each year they have made changes and alterations to provide a more and more complete line of goods. The first illustrations in the catalogue relate to ranges, both steel and cast, which are followed by an extensive line of cook stoves; then come parlor stoves of very ornamental con-struction, adapted both for wood and coal. Todd atoves of many atyles are shown, likewise Oaks. The cheaper grades of stoves are shown in large varicty, as well as small atoves for laundry purposes. At the close reference is made to cast iron hollow ware, enameled hollow ware and granite iron ware.

JAMES LAWRENCE, the knight of the quill at the establishment of Sam S. Utter, New York, has returned to stove accounts after a three weeks' sojourn among the hills of Connecticut taking on tan and avoirdupois. On one of his annual trips he acquired the art of writing with either hand, with equal facility, and the ability to foot up columns of figures with magic swift-

THE THOMAS - ROBERTS - STEVENSON COMPANY, Philadelphia, have purchased a shop right and are using the Graves permanent gas burner attachment on some of their popular ranges. The attachment is a very seasonable attraction and renders excellent service in opera-

SOUTHARD, ROBERTSON & Co., New York, are sending out a four page circular of the Savoy range printed in Two cuts are used, one showing a square range with Cabinet base and the other showing the range with a flush cover reservoir. The second page enumerates enough selling points to make a man buy one who had started to buy a refrigerator. They have end ash pits with ash pans, ventilated ovens, Reed's damper, duplex grate, and have burnished edges, in addition to full nickle trimmings. The trade is invited to send for the new catalogue just issued by Southard, Robertson & Co.

The output of gold in the seven British Australasian colonies shows a steady increase year by year. In 1893 it is reported as 1,876,562 ounces, as compared with 1,796,130 ounces in 1892; 1,651,-151 ounces in 1891; 1,599,350 ounces in 1890, and 1,739,750 ounces in 1889. Gold is found in each of the seven colonies, but Victoria headed the list last year in respect of the importance of her production. Queensland ranked second; New Zealand, third; New South Wales, fourth; Western Australia (Mr. 2014) tralia, fifth; South Australia, sixth, and Tasmania, seventh.

According to the figures of the Bureau of Industrial Statistics, published at Harriaburg, Pa., the output of the bituminous coal mines of Pennsylvania last year was 43,421,898 tons, a decrease of 1.164,678 tons from the production of 1892. In the anthracite coal region the output was 47,179,563 tous, an increase of 1,444,169 tons over 1892. The number of men employed in bituminous mines in Pennsylvania was 81.800. In the anthracite region 78,-789 is given as the number of miners.

The Lowering of Wages.

The tendency of wages, says TI: Iron Age, in sympathywith the tendency of prices for the past three years, is downward. The movement is resisted by all the means avaitable to those who are obliged to work for others, but its force is irresistible. The most formidable strikes known in our in lustrial lustory have been undertaken in the hope of restorneen undertaken in the nope of restor-ing past schedules, but they have either been successful in only a slight degree or they have proved inglorious failures. The trend of all values being downward, the price of labor goes down also. The recent coal and railroad strikes were crucial tests, and now that they have been met and passed the question seems to have been settled. Until the general condition of business improves there can be no restoration of wages to former standards, and there is no guarantee standards, and there is no guarantee that further reductions will not have to be endured by those who are now working for much less than they consider their services worth. Railroad revenues are still shrinking, manufacturers incomes are still diminishing, merchants sales are still falling off, and it is only reasonable to suppose that employees will have to bear a greater part of the burden of hard greater part of the burden of hard times than has yet been imposed upon or assumed by them.

In certain occupations, which are

hedged about by agreements with a time limit, no change in rates can be made. The workmen in such trades, however, are likely to be losers in the amount of their yearly income from the irregularity of employment. Numberless other occupations exist, however, in which time agreements are not made and wages can be changed by mutual consent whenever conditions may seem to require a rearrangment. In such lines the lowering tendency is now proceeding. It is not forced specially by employers, but is assisted by employees themselves. For instance, workmen whose usual wages are 35 cents per hour in good times are offering to work for 20 cents in order to get employment. This is being dono in a Western city in which labor is supposed to be as strongly organized supposed to be as strongly organized as in any other place in the country. Lack of regular employment is, of course, the cause. After a man has averaged less than half time for a year he concludes that more steady work must be had if possible. Having only his labor for sale he proceeds to offer it at a bargain, in the hope that he may find an appreciative buyer. Probmay find an appreciative buyer. Probably the expectant employer has helped ably the expectant employer has helped the downward plunge in wages by making a low bid for the workman's services, but he too is seeking work and is struggling to secure contracts on which he must reduce his costs. This acceptance of hard times condi-tion is believed to be widestread, and tions is believed to be widespread, and will shortly affect the great mass of wage workers unless there is a radical change in general business, which is unfortunately not to be expected in the near future. Those who maliciously near future. Those who maliciously assert that employers are taking advantage of the times to reduce wages rantage of the times to reduce wags falsify the circumstances. An occasional instance may be found in which a man will wantonly grind the faces of those dependent upon him, but it is the exception and not the rule. Reductions in wages are almost invariably the last resort to reduce costs. We have sufficient faith in human naturo to believe that employers generally are more pleased when they are able to increase the compensation of their employees than when they find them-selves obliged to make a reduction.

# TRADE REPORT.

### The Iron Market.

The business community is growing very impatient over the delay in Congress because the danger that the fall trade may be seriously interfered with is becoming imminent. The Iron trade has discounted the worst that may happen, so far as the Metal schedule is concerned, and is chiefly eager to experience the improvement in business which It is generally believed will follow the settlement, whatever shape it may take. The conviction is general that a good many negotiations have been held in abeyance preceding a decision, and that the Iron trade must share in any revival which may follow the present state of suspended animation.

Pig Iron.—The demand continues very light and the trade is dull. There is an inquiry in the market for about 1000 tons of Warrant Iron. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry Nr. 4 (Foundry Forge) is \$9.75 @ \$10.25

Our Philadelphia correspondent says: The tendency of the market is somewhat favorable to holders. It is much casier to do business, and while no improvement in prices can be noted there is no difficulty in placing all the Iron that makers desire at figures recently ruling. Furnaces are in first-class condition, some in fact have stopped taking orders until they see what course business is likely to take in the course of the next 30 days. Things are not in such shape as to warrant holders in asking an advance, but, as already mentioned, some are disinclined to accept further business at current rates, believing that in the near future prices will be better, and in any event they are sold pretty well up to the end of the year and can, therefore, afford to wait developments. Inquiries are said to foreshadow a good demand during the next 30 days, which, following liberal sales during the past couple of weeks, is very encouraging to makers of Pig Iron. General quotations for Philadelphia and nearby points are about as follows:

 Standard No. 1 Foundry X.
 12.50 @ 13.00

 Standard No. 2 Foundry X.
 11.50 @ 12.00

 No. 2 Plain.
 10.75 @ 11.00

 No. 1 Soft.
 11.50 @ 11.75

 No. 2 Soft.
 10.75 @ 11.00

From \*Chicago we have the following: Local Coke Iron has sold to about the same extent as reported last week. Shipments have increased beavily during the week, as foundrymen are now endeavoring to make up for loct time during the recent railroad strike. Southern Coke Iron has sold in only small lots, as usual, but agents report that they are offered long time contracts, which their principals are not willing to accept. The Southern companies now running are not burdened with large stocks and believe in peddling out their Iron in small lots rather than to anticipate the future,

which they believe will ere long bring about better prices. Not much business is reported in Lake Superior Charcoal Iron. Quotations are given as follows for eash:

Lake Superior Charcoal	\$14.25 @	\$15,00
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10,00 @	10,25
Local Coke Foundry, No. 3	9.50 B	10,00
Local Scotch	16,25 @	10.50
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	Ø	
Southern Coke, No. 2	10.75 @	11.00
Southern Coke, No. I	10.50 @	-10.75
Southern, No. 1. Soft	10.75 @	11 00
Southern. No. 2, Soft	10.50 ത്ര	10.75
Tennessee Charcoal, No. 1	@	
Tennesseo Charcoal, No. 2	···· @	****
Alabama Car Wheel	17.50 @	18,00
Jackson County Silvery	15.25 @	16.00
Other Ohio Silvery	14.25 @	14.50
4 t Toller 1 1 4 1 T		

At Pittsburgh foundry Iron shows no change over last week. The demand is light, but there is not much offering and prices are being sustained. For August and September delivery we quote as follows:

Our Cincinnati correspondent reports: The market has been working under the stress of a searcity of the grades of Pig Iron most in demand during the week and sellers have been able to obtain very full prices for the little they have had to offer, but the sales were mainly of single car lots, but sometimes ran up to 500 tons. Prices are not quotably higher, and yet an advance is obtainable for small lots for prompt delivery. Quotations are as follows:

Southern Coke, No. 1 \$10.25 @	\$10.50
Southern Coke, No. 2 9.50 @	9.75
Southern Coke, No. 3 9.25 @	9.50
Ohio Soft Stone Coal, No. 1 14.50 @	15.50
Ohio Soft Stone Coal, No. 2 14.00 @	14.50
Lake Superior Coke, No. 1 12.50 @	13.00
Lake Superior Coke, No. 2 11.50 @	12.00
Hanging Rock Charcoal, No. 1., 16.00 @	17.00
Hanging Rock Charcoal, No. 2., 15.50 @	16.00
Tennessee Charcoal, No. 1 13.00 @	13.50
Tennessee Charcoai, No. 2 12.00 @	12.50

From Birmingham we have the following: A visit to all the furnaces reveals still decreasing stocks of Iron. The demand for Soft Irons is still in excess of supply and is especially good in the Northwest and Chicago territory. There has been no loss of business in that territory to Southern producers, as they are practically out of the market, with no inclination to take new orders except under higher quotations. No. 1 Foundry is in rather light demand, also Gray Forge. Some new orders have been accepted at following prices, as seen personally on the order books: No. 1, \$8.50, \$8.90, \$9; No. 2 Foundry and No. 1 Soft, \$7.60 @ \$7.95; No. 2 Soft, \$7.75 @ \$7.85. General quotations range as follows: No. 1 Foundry, \$8.50 @ \$8; No. 3 Foundry, \$7.25 @ \$7.50; No. 1 Soft, \$7.50 @ \$8; No. 2 Soft, \$7.50 @ \$7.75.

The Nubian Iron Enamel Company of Chicago are distributing a quaint advertising device. It is a piece of transparent toilet soap in which a card is imbedded, bearing appropriate printed matter, which can be read through the soap on either side. The device is similar to a glass paper weight and its novelty attracts attention.

# Metal Market.

Pig Tin.—Prices have varied to a very slight extent during the past week, and for small lots there is no change whatever to report. Under the influence of careful nursing wholesale prices were carried up a trifle above the extreme lowest point of the month. The method of making quotations had, however, no perceptible influence upon buyers. Consumers have purchased in a most perfunctory manner. Dealers have bought only as supplies needed replenishing. Speculative dealings were very thin. A large supply remains in sight. In fact, there is so much of it that the leading operators experience more than ordinary difficulty in regulating prices.

Copper.—Competition for business has been livelier. Some sellers of Lake Superior Ingot quietly closed orders that for some time have been under consideration for September and later delivery. In small lots prices remain unchanged.

The exports of Copper from the United States during the month of June, as recorded in the report of the Bureau of Statistics, were as follows:

Ore— To United Kingdom	Tons. 127	Tons. 5,951
Totals	127	5,951
Ingots, bars, &c.—	1894. Lbs.	1893. Lbs.
To United Kingdom To Germany To France	6,828,486 $1,597,684$ $914,239$	1,127,175 884,841 1,828,475
To other Europe To elsewhere	3,668,673 40,600	3,733 642 171,332
Totals	13,049,682	7,745,465

The movement during the 12 months ending June 30 is given as follows:

Ore— To United Kingdom To Germany	1894. Tons. 22,464 1,016	1893. Tons. 41,163 106
Totals	23,480	41,269
	1894.	1893.
Ingots, bars, &c	Lbs.	Lbs.
To United Kingdom	74.611.789	5,589,214
To Germany	24.998.854	5,074.337
To France		12,536,800
To other Europe	66 095 810	14.026.344
To eisewhere	698,383	435,769
Totals	195,047,642	37,642,464

Pig Lead.—In a wholesale way prices have gone a fraction lower under the influence of freer offerings for shipment and delivery this month and next. There is active speculative interest in the market, and the elasticity that has characterized values was due chiefly to caution about taking broad risks on tarlff revision.

Spelter.—Only routine business of most pronounced conservative type has been effected in this market. The offering has not been particularly heavy, but in the present dull condition of the market sufficient to keep values rather weak. Fancy brands command about the usual premium. Sheet Zinc is unchanged from a week ago.

Tin Plate.—There is no more to report this week than there was a week ago, which is equivalent to saying that the market is dull and featureless.

There is but little buying by consumera and prices are fixed. In the wholesale market business has been uneven and, upon the whole, rather below the average for this season of the year. Inquiries are spiritless, with little interest shown in venturing beyond well-defired wants. The Government returns show that 454,000,000 lb were imported during the 12 months ending June 30, against 628,500,000 lb the previous year. In the face of this decrease the stocks in bonded warehouses increased from 32,187,000 lb to 48,968 000 lb. This speaks for itself.

# Chicago Report.

Scrap.—Cast Scrap is about the only kind of Old Iron now moving to any extent. Dealers quote the following list of buying prices, Chicago delivery:

	net ton.	Per lb
No. I Wrought Scrap	\$7.00	
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4,00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&c	8.00	
Old Boilers-whole (Iron)	3.00	
" (Iron)—cut in single	0.00	
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler	0.00	****
Tubes	5.00	
Cast Borings	3.00	
	4.00	
Turnings	8.00	• • • •
Horseshoes		E1 /4
Copper Bottoms	••••	5%€
Copper Clips and Heavy	• • • •	7 €
Heavy Brass	• • • •	516€
Light Brass	• • • •	8 ¢
Pipe Lead	• • • •	21/10
Tea Lead	• • • •	2 ¢
Zinc		2 0
Rubber		3160
Anthrocite The deme	nd is	***

Anthracite.—The demand is very light and the market shows signs of weakness. Carload lots of 12 net tons or over are quoted as follows:

	Egg, Sto. Grate, and Ch.		
Chicago, Ill	<b>\$</b> 5.25	<b>\$</b> 5 50	
Milwaukee, Wis	5,25	5.50	
Kansas City, Mo	8,45	8.70	
Council Bluffs, Iowa	8.45	8.70	
Lincoln. Neb	8.60	8.85	
Sioux City, Iowa	8.45	8.70	
Aberdeen, S. Dak	8.50	8,75	
Dubuque, Iowa	6.55	6.80	
Madison, Wis	6.75	7.00	
St. Paul, Minn	7.75	8.00	
Burlington, Iowa	6.75	7 00	
Des Moines, Iowa	8.20	8.45	
Davenport, Iowa	6.55	6.80	
St. Joseph, Mo	8.45	8.70	
Leavenworth, Kan	8.45	8.70	
Omaha, Neb	8.45	8.70	
(7-12- 4-41			

### Colorado Anthracite.

COLORADO PURE E IRUN COMPAN	ıx.
Denver	
Pueblo	8.00
Colorado Springs	8.00
Leadville	8,00
Cheyenne, Wyo	10,00
Cheyenne, Wyo	
Missouri River	8.85

BUCK'S STOVE & RANGE COMPANY, in their double page advertisement which appears in another part of this issue, illustrate a few of the new goods which they are putting on the market. Their line of Steel Ranges is particularly complete, and are adapted for hard or soft coal, coke or wood. Buck's Royal is a new air tight heater, which, in addition to being very attractive in appearance, has many valuable features which will doubtless make it a ready seller. Buck's Superh, for wood, and Buck's Round Oak and Buck's Square Oak are also illustrated. The company advise us they have full and complete stocks, and are in a position to fill all orders promptly.

### CONDITION OF THE

# Hardware Trade.

THE only notable change in the condition of the Hardware market is the placing of a number of large orders by some of the Western jobbers, who are putting themselves in a position to be ready for an increased business. Orders are, however, in general light, it being no unusual thing for the largest houses to telegraph small orders for express shipment. Everything points to the fact that stocks are everywhere very low, and that when any active demand sets in there is likely to be a scarcity of goods. The crop reports are generally favorable and collections are on the whole satisfactory.

Advices from Chicago.—The volume of business in Shelf Hardware is steadily growing. Country merchants continue their policy of ordering only to cover their actual wants, but their wants are evidently increasing, as orders are larger. The crop question is the absorbing topic in trade circles but the damage by drought is believed to have been exaggerated. There are large sections of the Northwest in which good crops are almost assured, and farmers in these sections will be greatly benefited if the advanced price holds on corn and other late farm products. Jobbers are inclined to take a very hopeful view of the situation on the whole and look forward to a larger fall trade than that of last year. They are advising mannfacturers of Hardware not to weaken in prices in order to encourage business, but to exercise a little patience until the demand improves, when the question of price will be subordinated to the more important matter of getting goods that will be needed. Stocks are so light and production has been so greatly curtailed that if the demand for staple articles assumes even fair proportions a decided scarcity will be felt. Heavy Hardware is less active than it has been, and August promises to be a dull month in this line.

### Notes on Prices.

Wire Nails.—There is a notable increase in orders for Wire Nails, and with the very small production at present going on atocks are light and steadily decreasing, but prices are no better. The New York price for small lots from store is \$1.30 to \$1.35

Advices from Chicago. — Manufacturera are doing almost nothing in this market. Inquiries have fallen off. The consumption of Wire Nails is light at present, and merchants are in no hurry to buy, taking chances of manufacturers weakening if the dullness continues for any length of time. Meanwhile the leading Wire Nail companies profess indifference and say that if small concerns feel impelled to make lower prices they will not follow them, but will wait for the advent of fall trade, when they feel sure that they can sustain themselves. Small lots from store are selling at \$1.20.

Cut Nails.—There is more doing in Cut Nails, but no change in prices. The store price in New York is \$1.10 to \$1.15.

Advices from Chicago. — Manufacturers report a moderate trade. Jobbers quote small lots \$1.10.

Barb Wire.—There is no change in the position of this article. It is not the season to look for any active demand, and such orders as come along are filled at unchanged prices.

Advices from Chicago.—The limited volume of business now in progress is taken by manufacturers at unchanged prices. They state that conditions are such that they do not apprehend a break in rates. Factories have not yet started up to any extent, and will be kept closed until the demand is greater. Jobbers are doing very little in this line and continue to quote small lots of Calvanized at \$2.35 to \$2.40, with 10 cents off for carloads.

Wringers.—The Lovell Mfg, Company of Erie, Pa., have put on the market a new line of Wringers, which they style the Guarantee. They inform us that these goods are made to supply a line of trade who want the best that is to be had regardless of cost. They emphasize the quality of the rolls and say that the prices in these Wringers have been fixed at as low a tigure as is consistent with a reasonable profit, and that whatever competition may be brought out, they will make no concessions in price nor deteriorate the quality. The following are their list prices for this line, the discounts being the same as on their other Wringers:

No.	Size of Rolls.	Price per doz	Size of Rolls.	Price per doz.
$\frac{2^{1}2}{1^{1}4}$ $\frac{1^{1}4}{1^{1}9}$	10x13/		V 14x2	\$144 00
$1^{1}_{4}$	11x134	55 00		<b>*</b> 2 0 0
119	Hx17	65 00 18 I	11x13 <sub>8</sub>	78 00
134	12x1%	65 00   26 1		
		28 1		152 00
1½ R	11x138	68 00 30 F	14x21 <sub>4</sub>	228 00
1 R	13x3	105 00 ;		40.00
3 R	14x2	142 00 10 E	$\frac{10x13}{11x14}$	62 00
11/4 M	11x1%	69 00 12 I	$^{11}{\rm x}1^{a_4}$	72.00
1 M	12x2	106 00 14 F	12X1%	85 00
3 M	14x2	143 00 18 F	$1.11 \mathrm{x} 1\%$	82 00
11 6 W	11x176	$-70^{\circ}00^{\circ}26^{\circ}19$	3 12x2	120 00
1 W	12x2	107 00		
3 W	14x2	144 00 18 S	$5 - 11 \times 17_{8}$	75 00
		26 8	5 12x2	112 00
10	10x1%	45 00 28 8	3 ,14x2	145 00
12	11x184	55 00 30 S	5 14x214	225 00
14	12x184	55 00 30 8 65 00 18 A 65 00 26 A	11x11	78 00 115 00
18	11x13	65 00   26 A	12x2	
26				152 00
28	14x2	140 00 ± 30 A	14x2/4	228 00
18 R	11x134	68 00 18 E	11x1%	78 00 115 00 152 00
26 R	12x2	106 00 '26 E	12x2	115 00
28 R	14x2	142 00 - 28 E	14x2	152 00
18 M	11x13%		14x214	$-228 \cdot 00$
26 M	12x2	107 00		
	14x2	$143.00 \pm 2$	10x13.	37.00
18 W	11x13/s	70 (0 3	111x13.	45 00
26 W	12x2	108 00 4	12x134	53 00
	1		1 "	

Indurated Fiber Ware.—Cordley & Hayes, sole agents, 172 Duane street, New York, announce the following reductions in the prices of some of their lines of Indurated Fiber Ware, taking effect August 1, the prices given heing subject to a discount of 25 per cent. to the trade:

					rer doz.
Pail Cov	vers				\$1.60
Wash B	asins				1.60
Slop Pa	ils				7.00
Slop Ja	re				8.80
Slop Ja	Mote				3.00
Profit our	mats.				1 10 00
I. W. B	uckets.	nickeled	rancet	, 3 g	al12.00
6.6	44	4+	6.6	4	··15,00
4.4	4.4	4.6	44.9	5	4 18,00
44	4.6	wooden	44	3	9.00
44	E 6		4.6		" 10.20
44	4.6	4.4			"15,00
Suittoor					2.40
Spreed	r rops,	46 1			
		1			2.00
4.4		" 2			1.80
4.4	4.6				1.60

This reduction in Spittoon Tops will make the Spittoons considerably less in price. No. 3 Spittoon will hereafter be only 9 inches in diameter and will list at \$4.20 per dozen. No. 2 will be 11 inches in diameter and will list at

\$4 \$0. No. 1 of the present size would list at \$5.40, but it is proposed to change the size and make the Spittoon about 13 inches in diameter. The price on this size has not yet been determined. The No. 0 size will measure 15 inches in diameter instead of 16 inches as heretofore, and will list at \$7.80. A new catalogue of the Ware has just been issued.

Glass.—A redeeming feature of the present condition of the American Window Glass trade is the comparatively small stocks in manufacturers' hands. The falling off in demand, which has been noticeable in the Glass market for the past two or three weeks, continues, and indications are not encouraging for an immediate change in this direction. Prices are weak, and while factory quotations are 85 and 5 per cent. discount for single, and 85 and 10 per cent. discount for double strength Glass, it is understood that these prices are shaded in some instances. Western jobbers are quoting 85 per cent. discount for single, and 5 per cent. discount for double strength Glass in full boxes. American Plate and imported Window. Glass remain unchanged in price and demand.

Old Metals,—The following quotations represent about the rates now paid by New York dealers:

Old Rags, Paper, &c. — Dealers' prices, New York delivery, are as follows:

		•
No. 1 White Rags	ь	314 @ 314¢
No. 2 White Rags		2 @ 21/4
Mixed Rags	B	8/4
Blues and 3ds		1 @ 11/4 ¢
Hard Sized White Shavings	Ib	21/4 @ 21/4
No.1 White Book Snavinga	Îp.	1% @ 21/8¢
No.2 White Book Shavings	Ip	
Light Book Shavings#	Ъ	%4¢
No. 1 Mixed Shavings#	Ъ	
No. 2 Mixed Shavings	P	84 @ 1 ¢
No. 1 Printed Books#	Ъ	1 @ 11/4
Ordinary Mixed Books#	Ϊb	× @ %¢
Newspapers	Ъ	
No. 1 Manila Paper *	Ъ	
No. 2 Manila Paper	D	
Bogus Paper	1p	
Common Paper₩	lb	8%€
Straw Chips₩	Īδ	1/2¢
Binders' Clippings#	Ъ	14€
Jute Butts#		1 1/8¢
No. 1 Jute Bagging₩		
Mixed Bagging₩	D	
No. 2 Bagging	l lb	14 @ 14¢
Hemp Twine	D	6 2 @ 21/4¢
Manila Rope	) I	
Jute Rope		
Mixed Rope	11	% @ %¢

Old Rubber.—Dealers' purchasing prices, New York delivery, are as follows:

Car Springs, ton lots, # fb	@	\$0.031/2
Rubber Shoes, carloads, de- livered at factory, # lb	a	.04%
Rubber shoes, less than car-		.04
loads, # fb	0	15.00
White Wringer Rolls, & D	@	.033/4
White Syringes, \$ 15	4	.00%

Chas. Noble & Co. of Philadelphia are, in another part of this issue, calling attention to the Liberty Steel Range, which they have placed on the market this season. It is made in several sizes, in portable and brick set styles, and will no doubt take well with the trade.

## Trade Notes.

A CIRCULAR distributed by True & Blanchard, Newport, Vt., calls attention to the Eureka Strainer Milk Pail, which is made with a removable strainer so that it may be readily cleaned with little trouble. An illustration on the circular shows the appearance of the pail with the strainer removed. This device will be appreciated by the trade who are familiar with the needs of the farmer.

Marlin & Co., Incorporated, Allegheny, Pa., make a full page announcement in this week's issue that will be of interest to the roofing and kindred trades. They show various styles of Eave Troughs, Conductor Pipes, Ridgings and Skylights. The special features of their goods are mentioned and the trade are invited to send for their 80-page catalogue which has just been issued.

THE KING & WALKER COMPANY, Madison, Wia., have purchased the foundry and machine shops of M. H. Ball of that place.

THE ELMIRA STAMPING & PAPER MFG. COMPANY, Elmira, N. Y., are making a fine line of galvanized iron oil cans, called the Elmira. They also manufacture a 1-gallon glass oil can with paper jacket, which they claim is an exceptionally excellent article.

THE FERRACUTE MACHINE COMPANY of Bridgeton, N. J., manufacturers of Presses and Dies, are running on full time and are filling a number of ordera for machinery from their new patterns. Among their most recent orders are six Punching Presses for a new eyele fitting factory in Ohio, a large round bed Press for cutting armature disks, with a complete set of Dies, and also a smaller Presa with notehing attachment for the Press with notening attachment for the armature disks, for a motor factory in Ohio. They are also fitting up a factory for manufacturing Miners' Lamps, and another for a new toy, and they have recently completed several Drawing Presses for making deep steel abells, lantern work, tin ware, &c., for various firms over the country. They emoody a great many improvements in their new Presses and have a new form of clutch which is extremely simple and durable. They are about getting out a new catalogue describing 300 different styles of Presses they build.

The glue interests of the United States have been consolidated under the name of the American Glue Company, with a capital of \$2,100,000. The new combine is said to include most of the leading factories of the country.

Shipments of petroleum from the port of Philadelphia during the first half of this year have been 161,082,000 gallons, showing a gain of 11,000,000 gallons over the shipments in the same period of last year.

By the preliminary report of the operations of the Internal Revenue Bureau for the last fiscal year, recently submitted to the Treasury, it appears that the total collections of internal revenue in the United States for the year were \$147,168,442, a decrease of \$13,836,547 as compared with the previous year. The percentage of cost of collection was 2.70, being an increase of 0.08 over the previous fiscal year. The principal sources of the receipts were: Spirits, \$85,259,546, a decrease of \$9,400,714;

tobacco, \$28,617,898, a decrease of \$3,271,813; fermented liquors, \$31,-414,493, a decrease of \$1,134,489, and oleomargarine, \$1,723,479, an increase of \$52,836

### CONTENTS

CONTENTS.	
ditorials: Page	
Digoity	9
Familiarity	39-
Transportation Expedients 2	19
xhausting Smoke from Forges	39
he Letter Box—	
Disease Germs and Ventilation	10.
Conceeting Summer Range. 1ilus	10
"Where Ignorance is Bliss."	40
Wind	41
Repairing Agate Ware	41
Aluminum Boats	41
'he Retall Store-	
"Household Wants, '95 Model." Illus	42
New Royal Pound Mill. Hlustrated	42
	42
The Sloteman Gas Buruer. Illustrated	43
Art Laurel Oil Heater. Illustrated	43
Plumbing and Gas Fitting—	
Gas and Gas Fitting.—V. Illustrated	44
Wolff's New Steel Sinks	45
Traps and Vents	45
Small Arms Tests at Newport	46
Heating and Plumbing—New Work and	
Contracts	47
Steam and Hot Water— The Ornate Radiator. Illustrated	48
Hot Water Plant Heated by Steam	48
	49
Heating Notes	49
Obituary	49
Scrap	40
The Tin Shop—	
Pattern for Elbow, Round to Rectangu-	50
lar. Illustrated	00
Roofing and Cornice— The Columbia Steel Lath. Illustrated.	52
	52
Flashings	52
The Indiana Natural Gas Supply	63
Progress in Galvanizing	53
An Economical Cupola. Illustrated	33
Stove Trade Notes	
Philadelphia Stove Trade	54
Bench Molding in Stove Shops	54
C. Emrich	
The Cortland Howe Ventilating Stove	;
Company	55
Cribben, Sexton & Co	
Bergstrom Brothers & Co	
De Haven & Co., Limited	
He Wouldn't Have the Stove Odd Plates	
The Lowering of Wages	
Trade Report—	
The Iron Market	. 58
Metal Market	58
Chicago Report	
Condition of the Hardware Trade	
Notes on Prices	. 60
Trado Notes Metal and Miscellaneous Prices	. 61
Labor Exchange-	
Help Wanted	. 63
Situations Wanted	. 63

# THE METAL WORKER.

# NEW YORK AND CHICAGO.

Saturday, August 18, 1894.

DAVID WILLIAMS, - PUBLISHER

#### RUSINESS OFFICES:

NEW YORK96-102 Reade Street.	NEW
PHILADELPHIA220 South Fourth Street.	
BOSTON146 Franklin Street.	BOST
PITTSBURGH Room 509 Hamilton Building.	
CHICAGO59 Dearborn Street, cor. Randolph.	CHIC
CINCINNATIRooms 22-24 Pickering Building.	CINC
ST. LOUISBank of Commerce Building.	ST. I
CLEVELAND312 The Cuyahoga.	

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

# Tin Plates and the New Tariff.

The event of the past week in business circles was the passage of the tariff bill which, at this writing, is awaiting the signature of the President, and the general opinion is that it will become law. Our readers are especially interested in the clause relating to tin and tin plates. Tin is placed on the free list, and tin plates arered uced from 2.2 cents per pound to  $1\frac{2}{10}$  cents per pound. The effect on the market has not yet been felt, the stocks at present being exceedingly small and broken, and the large quantities in bonded warehouses being out of reach except on payment of the prevailing duty. Interest centers in the position of the American manufacturers under the new rate. The opinion prevails that profits in making tin plates, where the manufacture of black sheets and the dipping have been done by one concern, have been large, and it is believed that such works will continue to operate and meet the Welsh plates in competition. The McKinley law had the effect of advancing plates about \$1 a box, but since it went into effect prices have receded and what practically amounts to the same thing, consumers have in many cases taken up with lighter weight plates, and even a poorer quality, so that plates used for the same purpose are now back to within 50 cents a box of the price prevailing before the McKinley tariff went into effect. It is not expected, therefore, that the reduction of 1 cent a pound will lower the market here another \$1 a box, though if the Welsh market goes down sufficiently, such lower prices will be possible.

## American Dipping Works.

The outlook for the dippers in this country, those who have dipped their plates and depended upon domestic or foreign manufacturers for black sheets, is not promising, for while the duty on

the plates has been cut down 1 cent a pound the duty on the black sheets has fallen less than 1, cent a pound. This will tell very strongly against the use of imported sheets, and whether or not they will continue to dip depends upon the price at which they can purchase the domestic article. The firms who own their pots and sell direct to the consumers have, to be sure, the advantage of the dealer's profit, but it is uncertain whether with it and the saving due to free tin they can operate profitably. While it is generally conceded that the American manufacturers who roll their own plates will continue working, the profit will necessarily be smaller than heretofore and the temptation for new capital to go into that line of enterprise will be lessened. The industry may grow until eventually the entire home demand is supplied, but the leaps and bounds by which it has progressed during the past two years will be restricted hereafter to slow and well considered steps.

### Figuring for Contracts.

In the midst of what is generally admitted to be a dull business period it is notable that many tradesmen are busy. They are employed in figuring on plans with the hope of securing the contract for the roofing, plumbing or heating. The practice of everybody who has a little or large job to be done is to get figures to a greater extent than ever before, which is partially due to the persevering search for work by contractors. This has brought a great number of plans into the market, and the amount of time spent on the plans will never be paid for by the profit in the work that will be done. As a natural result out of a great number of bids made very few contracts are closed. Some have asked for bids on projected buildings with the hope of getting a greatly reduced figure, as material of every kind is at its lowest price, and have been disappointed at the figures received and the projected work is never carried out. This leads to an unfortunate state of affairs for two reasons: the buyer thinks that the prices are not as low as they should be, and the bidder thinks that some one has underbid him.

## Cost of Work.

The price of labor in plumbing, pipefitting and tinning for really good workmen has not varied greatly for some years; consequently, very little reduction in the cost of work can be looked for in that direction. Shop rent, clerk hire, insurance and all of the incidental expenses of carrying on a business have not reduced in cost.

When the price of material two years ago and the price to-day are compared there is no good reason why a bid for any kind of work should show a great reduction, yet it is expected to do so This is unfortunate, and if it was possible would lead to a cut in estimates, as there is some evidence of demoralization, if reports be true. It requires, however, considerable courage to maintain prices when making bid after bid, and closing only here and there a contract at the figures quoted. There has been a great deal of quiet determination to get whatever was in sight this year, and those who have been most successful are those who have thoroughly explained, whenever possible, just what was needed and what they intended to do. Some of these bidders have closed contracts even this year, when they were by no means the lowest bidder. The assertion that money talks is generally believed; but that a well-informed tradesman who explains his intentions so as to gain the confidence of his customer can silence a low bid is oftener true than is generally realized. Good work cannot be done at cut rates.

# Electric Ventilation.

Properly speaking, this is mechanical ventilation effected by electricity as a motive power. Go where one will, small fan blowers driven by electricity are now a familiar object. These have rendered life in banks, stores, restaurants and even private dwellings far more endurable in sultry weather than was formerly the case. So far, the electric current for driving these fans is for the most part taken directly from wires used for lighting and other purposes. Some, however, are driven by battery power, and as the storage battery becomes gradually improved it will more and more be used for this and similar purposes. The storage battery, while not yet fulfilling the promise it seemed to held out when first introduced, is yet constantly advancing in usefulness. Electric ventilation, like electric lighting, has come to stay. The heating and ventilating trade, not only by this innovation but also in other ways, is becoming more related with electrical engineering as time advances. By the use of electricity, low pressure steam heating and mechanical ventilation can often be advantageously carried out together. When this is done a skilled engineer may be dispensed with who would otherwise be necessary to attend an engine and boiler for driving the fans.

The coal miners at Spring Valley, Ill., have voted not to resume work. The company decline to recognize the union.

# THE LETTER BOX.

Joining Porcelain Lined Soil Pipes.

From E. S. W., Mechanicsburg, Pa.— In putting up porcelain lined soil pipes are the joints made with hot lead, or will that injure the lining; and what is the best way to make the joints if the heat interferes?

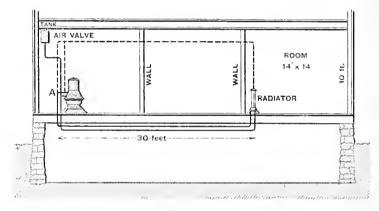
Note. - The practical methods of our readers in work of this kind will undoubtedly prove of interest to our correspondent. We have no information at hand as to the method of making the joints in porcelain lined pipe. joints between the frequently used porcelain lined traps and ordinary soil pipe are made by the usual manner of calking with oakum and pouring on hot lead, which is calked when cool. From this it would seem that there is no reason why the joint should not be made in the same way. Cast iron pipes are frequently put up with rust joints, but difficulty is experienced in making repairs when needed.

### Leaky Block Tin Pipes.

From T. J. P., Philadelphia.—I send herewith a piece of block tin pipe and would call your attention to the blister between the two small cross marks, which made its appearance on the pipe after use. The pipe is a portion of a coil used in connection with a beer pump. Several of these swellings appeared along the center of the coil on the bottom side, and after a time holes formed in the pipe. Is this a common occurrence, and can you give a scientific explanation of the cause?

Note. - We shall be glad to hear from any of our readers who can give any light on this subject. The sample of pipe received is generally conceded to be of high grade quality, about 8-ounce weight, and measures ! inch outside diameter. On one side is a small awelling 3 inch ln diameter and about 3 g inch nigh, the surface of which shows granulation and which under test leaks air. From the size and shape of the awelling it would be supposed to have been formed by pressure on the inside, but the inside surface is perfectly true in form. Leaks are not unusual in the tin coils used for cooling in aods water fountains and in connection with beer pumps. Sometimes the leaks grow from the appearance of a very small black spot, which develops into a hole. On inquiry as to the cause of the leaks other pipe has been shown that at places looked like a worm eaten piece of wood and at another place for a space of 3 inches and for one quarter of the circumference of the pipe it had an appearance similar to what would result from the pipe being made of dross. Among those who have experience with these coils the leaks are not an unusual oc currence. The cause, however, has not been discovered and is looked upon as a mystery similar to the pitting of a boiler tube. One opinion expressed is that the leaks are due to chemical action, but just how brought about is not explained, although pipe is said to give out much quicker when the coil lies in a tank lined with plain or planished copper than when the copper is heavily tinucd. In some cases these tanks are not kept clean and beer is spilled in them, so the coils are exposed to an acid effect as well as the gases of fermenta- |

coil exposed on all sides and above suificient fire surface is recognized as one of the best of water heating surfaces, and it is possible that I square foot of heating surface in such a coil would heat 20 feet of surface in the radiator. A coil, therefore, having 2 square feet of surface will be required in the stove, or about 6 lineal feet of 1-inch pipe. If hot water is to be drawn from the heating system, a larger amount of heating surface should be provided in the coil, and a supply of cold water arranged for to take the place of the water drawn eff. A ball cock in the expansion tank would probably answer the purpose. The drawing of water in



Piping from Stove Coil.

tion. We have heard no reliable explanation given of the cause of the trouble.

### Piping from Stove Coil.

From J. W., Memphis Tenn.—I send sketch of a heating arrangement I propose using, but as I am not well versed in this business, would like your opinion of the same. Will it work as shown in the sketch? About what size of coil should be used in the stove, and what size of radiator employed in the room to be heated? Can hot water be drawn from the pipe near the stove? Very little hot water, however, will be used. Please make any suggestions that would improve the system and keep the piping under the floor.

Answer.—A heating engineer would require, before answering the questions submitted, more detailed information as to the surroundings, &c., but to aid our correspondent in a general way we present the following: The room, according to the sketch, is 14 feet square with 10-foot ceiling and located 30 feet distant from the stove. About 2000 cubic feet of space is contained in this room, and on the basis that 1 square foot of heating surface will heat 50 cubic feet of space, 40 square feet of surface would be required in the radiator. A

large quantities from the system in cold weather, however, would have a tendency to cool the surface of the radiator and the coil, thus affecting their heating efficiency. It is doubtful if circulation would take place in the piping shown on the sketch except so slowly as to be useless. If the pipes must be run below the floor so as not to be exposed in the intervening room it can be done as shown by the dotted lines at the left by running the flow pipe up near the ceiling, then returning it to the floor and passing along to the radiator, not forgetting to place an air valve at the top of the aiphon. Another and better method, though it would expose the pipe, would be to run the pipe to the ceiling, then over and down to the radiator, and returning the pipe under the floor, as shown by the dotted line.

### Needs a Relief Pipe.

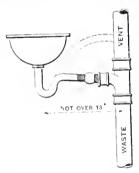
From I. F. G, Lebanon, Pa.—Some time ago I put up a large range, connecting an 80-gallon circulating boiler with it, which was fed from a tank on an upper flor. On some days when the range is run hard the water gets too hot, producing steam in the boiler, which is partially relieved by allowing the hot water to run off, hu: as the

aupply of water must be pumped to the tank, some way of avoiding this waste is desired. Will a pipe connected with the top of the boiler and running up to the top of the supply tank stop the noise in the boiler, or is there a better plan?

Note.—If our readers have anything to contribute on this subject it will no doubt be appreciated by this correspondent. Sometimes a safety or air valve is used at the top of the boiler, and this may be a more simple solution of the difficulty than running a pipe to the tank. However, good results can be obtained by the use of a pipe running from the top of the boiler to a point above the tank, the end of which is bent down so that the condensation will be discharged into the tank, but not beneath the surface of water when at its highest level.

### A Question in Trap Ventilation.

From E. W. S. & Co., Pasadena, Cal.—Having noticed that The Metal Worker publishes answers to questions by correspondents, we take the liberty to send you a diagram of a basin waste and vent. It is claimed by some architects that this trap is not properly vented without the crown vent represented by the dotted lines; we will explain that this is the upper fixture on



A Question in Trap Ventilation.

this line of waste. Please publish an answer to this for the benefit of our customers.

Note.—Owing to the location and conditions it would seem that there would be so little of the pipe unventilated that a crown vent would be unnecessary, but to make a perfectly correct job, both technically and according to the plumbing laws of many cities, the crown vent connected to the air pipe would be necessary.

# Connecting Kitchen Boiler to Furnace.

From C. S., Lakeport, N. H.— I would like to have the opinion of the readers of The Metal Worker on the following job: There is a hot air furnace in the cellar and a hot water boiler in the kitchen on the first floor, the furnace being about 20 feet from the boiler. Can I put a coil of pipe in the furnace and connect it with the boiler so that hot water can be had when no fire is in the range? It often happens in the winter season that the range is without fire, but the furnace is never without heat.

Note. — We hope our readers will answer this correspondent as requested. In this connection we would say that in The Metal Worker during December, 1893, some attention was given to this subject. When the heating coil is properly proportioned to the work and the piping correctly run there should be no trouble.

### Recording Stove Sales.

From S. T. F., Rock Hill, S. C.—Can The Metal Worker inform us where we can purchase a stove register, as we are desirous of keeping a record of our stove sales? We submit a diagram which we think is suitable. We would be glad to hear the views of other dealers on this subject:

# Smoky Chimneys.

From F. H., Durham, Conn.-Last April we wrote your correspondent, "I R S.," Stonington, Conn., regarding his article on defective chimneys, receiving his reply in due time. Within the last ten days we have put his auggestions to practical use on our 40 foot stack. When putting up the stack the mason, who was supposed to be competent, had his own way, making the flue square and 20 inches throughout. chimney has given trouble at times, especially in damp, muggy weather, so we took off the iron cap and reduced the width of the flue and increased the hight by so laying the brick that the flue was reduced 4 inch with each sourse and continuing until the outlet of the chimney was only 10 lnches square. On top of this we put a cast

STOVE	E RECORD.
No. of Stoves sold	No. for current year
Purchaser	*** *** *** ***************************
Name of Stove	
No. of Stove	
Size of Oven	***************************************
Date Sold	
Year Manufactured	
Name of Manufacturer	
No. Pce Ware Furnished	
Cost	
Price	
·	emarks.
	PART OF THE PART O
***********	
	****

Note.—We call to mind no book published for this purpose and will be glad to hear from our readers as to the methods they adopt. Such books are kept by many dealers and prove a convenience in later years when repairs are needed for the atoves, as the customer can seldom give the necessary name and features of the stove to insure an order being correctly filled without a delay to get the dates, number and name of the stove with its peculiarities. A properly kept stove sales record for each year renders excellent service for this purpose.

### Stove Polish.

From D. B. Robins, Fredonia, Pa.—I wish some of your readers who are expert stove polishers would give me a receipt for a fine black luster stove polish. I prefer one that is not offensive in odor from benzine or gisoline, if such cau be had. Or what ready made or prepared polish on the market is the best? We have tried many, but all require benzine, and I want to accure one that can be used without it.

iron cylinder 18 inches long, with a width of 13 inches at the base and 10 inches at the top, which we bricked in solid. So far sa we can see this has remedied the trouble.

# Summer Test for Winter Heating.

From G. P., Victoria, B. C—Will you kindly inform me through The Metal Worker what is considered a sufficient test for any heater in summer when the thermometer shows an exterior temperature of 50° or 60°, and in winter from freezing to 40°?

Note. — We shall be glad to have our readers use the columns of The Metal Worker in discussing this subject. This question has received some attention in engineering circles, but no final solution of the problem has yet been furnished.

Attorney-General Moloney has filed a petition for a bill in equity against the Pullman Palace Car Company, calling upon them to show cause why they should not be prohibited from further doing business under the laws of the State of Illinois.

Elevation and Patterns of Offset Elbow.

From W. 11. E., Fall Ricer, Mass. I would like to have a method pub-lished in The Metal Worker for obtaining the elevation and patterns of double or offset elbow, as indicated in the accompanying sketch. From A to B is 3 feet, and from C to D 3 feet 6 inches. The 15-inch pipes C D and C' B are to be connected by means of a double elbow, as indicated by the dotted lines DMC and CNB.

Answer.-In Fig. 2 is presented a duplicate of sketch submitted by our correspondent. To obtain the elevation of desired offset elbow proceed as follows: Bisect ed and Be' and draw E E. Divide E E' into four equal parts, as indicated by E F G F' E, and from points F and F erect the perpendiculars F H and F' H'. With H E as radius and H H' as centers strike the arcs ET G, G T E'. Divide the arcs into any odd number of parts, depending on how many pieces there are to be in the elbow. As the part of elbow above N M is to consist of four pieces, E T G and G T E' are each divided into seven equal parts. Prolong D d, C c and C' c' as shown, and through point I in E T G draw the line H J, extending it indefinitely. With H as center and H d as radius strike the arc Rd. From H and H' set off the distance R J, as shown by the same points as centers and with SQ dicated by JQ KP, LO, &c. Conss radius strike the arcs QPON and nect the points JKLM, QPON, &c.,

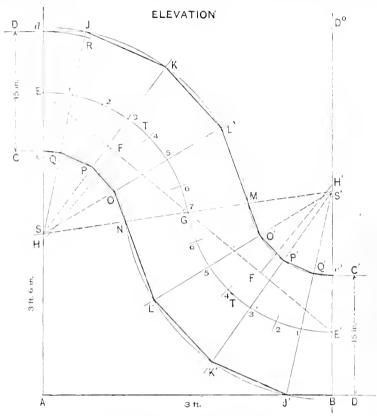
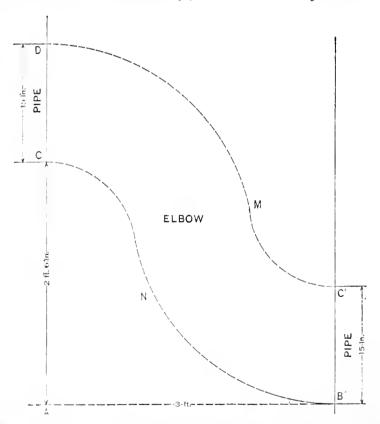


Fig. 2.-Method of Drawing the Elevation.



Elevation and Patterns of Offset Elbow.-Fig. 1.-Sketch Submitted by "W. H. E."

S H, H' S', and draw S S'. With S and | Q P' O' M. From S and S', through S' as certers and S J as radius strike points I, 3 and 5 in E T G T' E', draw the arcs J K L M and J' K' L' N. With the miter or joint lines of elbow, as in-

as shown. As but one section of elbow is necessary for use in obtaining the patterns the various sections may or may not be drawn, as desired.

In order that a confusion of lines may be avoided the method of obtaining the patterns for parts of elbow is shown in Fig. 3. To obtain the patterns shown proceed as follows: Opposite the arm of elbow, as indicated by DJQC, draw a whole or half profile, as may be found convenient. In the present instance the half profile is drawn as indicated by C U D. Divide the half profile into any number of equal parts, and, with the T-square placed at right angles to S D, and bringing the blade against the profile, drop corresponding lines upon the miter line QJ. Place the T-square so that the blade shall be parallel to J K, aud carry lines from the points in Q J, cutting P K as shown. For the pattern of arm DJQC, on C D extended lay off a stretchout of profile, as shown by V W, through the points in which draw the usual measuring lines. Place the T-square parallel to the stretchout line, and bringing it against the points in Q J, cut the corresponding measuring lines as shown. Then a line traced through these points of intersection, as shown by v b w, will be the pattern.

For the pattern of section J K P O

prolong the line S X, as shown by Y Z, and upon this line lay off a stretchout of the profile. Through the points thus obtained draw the usual measuring lines. Place the T-square at right angles to the section, or, what is the same, parallel to the stretchout line, bring it successively against the points in the miter lines J Q and P K, and cut measuring lines of corresponding

sirous of continuing in the employ of -, hereby agree in consideration of such employment and the agreements on the part of the employer hereinafter contained, that:

1. I will conduct myself as a gentleman in and about the business in which I am employed and toward my fellows.

2. I will perform my duties to the best of my ability and abide by the rules of the firm as from time to time adopted.

3. I will remain in employ of said - unless sooner discharged firm until or released in accordance with the con-

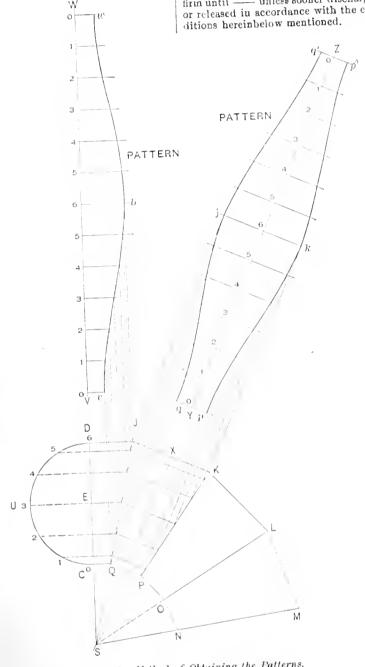


Fig. 3.—Method of Obtaining the Patterns.

Lines traced through the points thus obtained, as shown by  $q \neq q'$ and p k p', will form the desired patterr.

# A System of Wages Contracts.

An employer of labor in Chicago has caused to be published a form of wages contracts, which he introd ced in his manufactory some years since, and which he says has worked very satisfactorily. The form is as follows:

# Employee's Contract.

I, —, of the city of Chicago, residing at No. — street, being de-

4. I will leave 10 per cent. of my wages on deposit with my employer until such percentage so left amounts to the sum of — dollars, after which I am to draw all my wages excepting said deposit, upon which I am to receive interest at the rate of 6 per cent. per annum, unless said deposit is forfeited in accordance with the conditions hereinbelow stated.

5. I agree not to join in any strike or remain away from the shop of my em ployer during any strike of employees of any other establishment in the United States or of any employees of said firm, under penalty of forfeiting to said firm for its own use the sum deposited in accordance with Clause 4 of this agree-

ment, which sum shall be in full of all damages.

6. Lagree not to join or remain a member of any organization in which the obligations of members are such as would in any way prevent me from earrying out this agreement in good faith.

### Employer's Agreement.

1. The said firm agrees on its part to furnish employment to said employee until --, at the rate of --- dollars

per day of ten hours.
2. To pay to said employee, Monday of each week, all wages earned the preceding week, except the 10 per cent, to be retained in accordance with this agreement, above noted, clause four.

3. To pay to said employee at the expiration of this agreement all moneys due, including 6 per cent, interest upon all moneys retained in accordance with this agreement.

4. Said employer agrees not to discharge the said employee excepting for cause, and he shall be entitled to a written notice of such discharge one week preceding the date upon which employment shall cease.

5. Said employer agrees that he will release from this agreement said employee in case any contingency arises that in the judgment of the managers or superintendent of the department in which he is engaged is such as to justify said employee to a discharge.

6. Said employer agrees not to join or remain a member of any organization in which the obligations of members are such as would in any way prevent them from carrying out this agreement in good faith. It is mutually understood between the parties hereto that the object of the employee in entering into this contract is to obtain continuous remunerative employment, and upon the part of the employer to retain competent and reliable employees, upon whose services he can confidently rely. It is also mutually understood that 10 hours shall constitute a day's work; but said firm shall have the right, during seasons of dullness, to run upon short time, not less than 45 hours per week, and during such short time it shall only pay for the number of hours' service actually rendered.

Signed in duplicate at Chicago, this 

He further says: "It is not my practice to have contracts with all my men, but only with so many as I feel certain that I will be able to furnish work for. Hot headed men rarely strike unless they feel that the strike will be practi-cally unanimous, as 25 or 50 per cent. (which always includes the best men) forms a nucleus around which a perfect organization can be quickly effected. I have had no difficulty whatever in inducing men that I wanted to sign the contract, as it is considered fair. The deposit is required to place the men upon an equality with me in a financial way so far as the contract is concerned. The contracts are made to expire at different times during the year, so that comparatively few are expiring upon any given date. The men in the shop consider an offer of a contract as a compliment, and those not under contract look upon those who have them with some jealousy; but no trouble has arisen from this cause. It is a good thing for the men, as it teaches them that they can save money; and several of my men have paid for homes from their savings. The contract does not prohibit unions legitimate purposes; social advantages, life insurance and sick bene-

# ROOFING AND CORNICE.

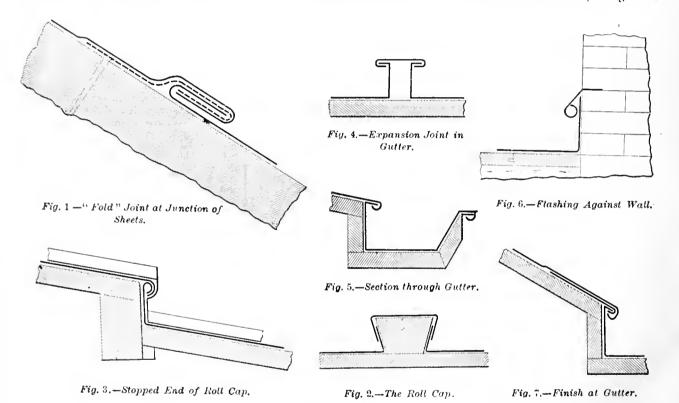
# Zinc Roofing Abroad.

At a late meeting of the Northern Architectural Association, held at New castle-on-Tyne, a paper on Zine and Zine Roofing was read by the secretary, Arthur B. Plummer, and published in full in the Building News of London. From that portion of the author's remarks relating to zine roofs we condense the following, and reproduce the sketches as shown:

Referring to some of the different systems of zinc roofing recommended by the Vieille Montagne Company and others, I would state that the roll cap system is laid on boarding, and

cap system, the section through a roll is somewhat of a wedge section, with the point of the wedge cut off (Fig. 2). The clips that pass under the wood rollers are about 2 inches wide and placed about 3 feet apart along the roll. The cap is secured by forked connections; these are pointed pieces of zinc, 2 inches or 3 inches long, by about 1 inch wide, one end of which is soldered to the inner surface of the cap on each side, the point being free as the cap slides into the roll. The points of these forks slip in under the hooked portion of the clip. The stopped end of the roll cap on the upper level of the drip is bent over with the edge of the

doubled back so as to form a bead, and also by a strlp of strong zinc nailed along the edge of the boarding over which the bead is turned (Fig. 7). The ridge cap can be covered by a zinc roll cap turned over it; this cap is strengthened on the lower edges by being bent round so as to form beads, and it is fixed with clips in the usual way (Fig. 8). The incline of zinc roofs constructed as before mentioned should be from, say, 20° to 30°, whereas for slates or tiles it is from 32° to 45°; consequently this system of roofing requires lighter framing and less brick work in the hight of chimneys, gables, &c., and there is also less surfarce to cover, owing to the



ZINC ROOFING ABROAD.-ILLUSTRATIONS ACCOMPANYING MR. PLUMMER'S PAPER.

on this boarding, at intervals of about 2 feet 10 inches or 2 feet 11 inches, center to center, wood fillets or rolls are fixed while the roofing is being laid. These run from ridge to caves. Roughly speaking, the sheets of zinc are laid between these rolls, with their edges turned up against the rolls and the edges and roll are then covered with a capping of zinc. If the roof has a fall of 1 foot in 8 feet, or upward, then only a welt or fold joint at the junction of the sheets is required (Fig. 1). In the case of flatter roofs, if possible a fall of 3 inches in 10 feet should be obtained; in such flat roofs, however, the drips should occur at about every 7 feet 6 inches. The drips should be 2½ inches deep and not less than 2 inches, to allow the rolls to pass under the projecting upper sheet. If laid with the drawn roll the drip will require to be 3½ inches deep. In the roll

sheet (Fig. 3). In gutters where the incline is very slight and soldered joints are therefore necessary, an extra allowance of play should be provided for expansion and contraction by placing a sort of roll system across the gutter at its highest points (Figs. 4 and 5). For guttera 1½ x 2 inch drips should be allowed, except where it is necessary to put a roll in the center, and in this case they must not be less than 2 inches.

### Flashings.

Wall flashings should go into the wall 1½ inches; they are very similar to lead and for strength to stiffen the edge, and for appearance, should be finished with a bead (Fig. 6), and pointed in cement. The edge of the sheet should be turned up about 6 inches against the wall. The upper edges of the sheets nearest the eaves are strengthened where they project over the gutter by being

lower pitch of roof. Zinc roofs also have zinc gutters and flashing 3, and the extra cost of auch lead work in ordinary roofs is thus saved. In cases of greater or less pitch than 20° to 36°, it is better, the Vieille Montagne Company say, to adopt the patent roll cap system. This is similar to the ordinary roll cap construction, excepting that there are differences in the shape of the wood roll, the roll cap and the clips. When zinc roofing is required to be laid not upon boarding, it is strengthened by corrugations. Ordinary corrugated zinc has the flutes about 3½ inches wide, and rests upon spars about 2 feet 6 inches apart. Zinc roofing thus constructed has the advantages of both strength and durability owing to the corrugation. I may perhaps also mention that the corrugation itself in great measure overcomes the difficulty of expansion and contraction—at any rate,

this is the case across the sheets in cor-It can be easily laid upon a rugation. light framework of wood or iron; it is unnecessary to have boarding. minimum incline of these roofs should be about 22°; the lap in the width of the sheets should be from 31 to 4 inches The sheets should not be riveted to gether; they can be sufficiently fixed with clips-that is to say, three slips of zinc are soldered to the underside of each sheet, and these book on to similar hooks fixed to the wood framing, or ther can hock on to iron purlins. The they can book on to iron purlins. corrugations are of three sizes-2# 3 and 315 inches, center to center. Patent corrugated zinc, with flat spaces between the corrugations, is another form of corrugation often preferred (Fig. 9).

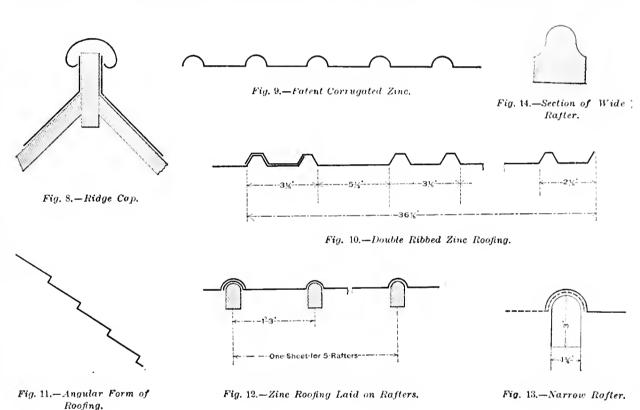
#### Double Ribbed Rooting.

Double ribbed zinc roofing may be laid on boarding or on laths or battens

those below them should be about 5 inches. The rafters rest upon purlins, which in large roofs (owing lightness of the system) may be 10 feet The depth of the rafters or rolls apart. should be about 3 inches when resting upon purlins 7 feet apart; but when laid upon boarding, 2 inches deep is enough. The wood rafter can be any depth and wi th; but 3 x 14 inches (Fig. 13) is large enough if the rafters are wider. Then the upper part to a depth of 11 inches must be worked to receive the corrugations of the metal (Fig. 14) The ridge roll is covered with z ac nearly in the same manner as with lead, except that the zinc is not worked so much into the angles under the roll, and it is secured on the underside by forks. Valley gutters are also formed in somewhat the same manner as with lead. For roofs laid with wood rolls, the wooden trough is lined with that paint does not readily adhere to sheet zinc unless it is first washed with one or other of the necessary solutions, or a thin coat of liquid size will make any oil color adhere to zinc should this be required for any purpose.

# National Iron Roofing Association.

The semi annual meeting of the National Iron Roofing Association was held at the Horlenden House, Cleveland, Wednesday of this week, August 15. Eleven concerns were represented at the meeting from the cities of Canton, Cincinnati, St. Louis, Cambridge, Chicago, Niles and Cleveland. The business transacted was of a routine nature and not of general interest. The Tariff



ZINC ROOFING ABROAD.—JLLUSTRATIONS ACCOMPANYING MR. PLUMMER'S PAPER.

(Fig. 10). The double ribs give extra rigidity to the sheets. The top of the sheets are nailed to the wood work under the overlap of the sheets above them, and the upper sheets are fixed with a forked connection on the inner face of the ribs. The length of the lap varies, according to the incline of the roof, from 2½ to 6 inches; the smaller the inclination, of course the longer is the lap, to avoid capillary attraction. Corrugated zinc may be laid like corrugated iron, with the flutes horizontal, so that the sheets will span wider spaces between principals without any intervening rafters or purlins. In such a case, however, the flutes must be of a peculiar angular stepped form (Fig. 11). In Italian corrugated zinc roofing the corrugations are 1 foot 3 inches center to center (Fig. 12) A great advantage is that it may be 1-id without boarding upon rafters spaced and shaped to fit into the corrugations, or it may be laid on boarding. The sheets are secured on boarding. The sheets are secured to the rafters by patent holding-down clips. The lap of the upper sheets over

sheet zinc, the sides of which are turned up, and the upper edges bent inward under the bead formed by the lower edge of the sheet at the eaves. When Italian corrugated zinc is used, the sides of the zinc lining to the gutters are turned up, and the edges bent over the thickness of the wood sides of the trough; the minimum fall of such gutters should be 1 in 40.

### Weight of Roofing.

The following is the approximate weight when laid, including corrugations and laps for 100 superficial feet: Square roll cap, 14 gauge, 144 pounds; Italian corrugation, 150 pounds; square roll cap, 16 gauge, 192 pounds; Italian corrugation, 198 pounds

corrugation, 198 pounds.

In the zinc tile system the tiles are generally fixed on boarding with clips or hooks, and are well adapted for high pitched roofs; they can be fixed with ease even by unskilled men. Each tile is hung from a hook fixed upon battens or boarding, and passing through a hole near the top of the tile. I may mention

Committee reported that it had been able to secure certain changes in the iron schedule, which it was expected would be of benefit to the trade.

### FLASHINGS.

NED. PIERCE, Bellows Falls, Vt., has secured the contract to slate the east wing of the Abensqui Machine Works of Westminster Station, Vt. He also has under way the slating of an addition to a school house in Marlboro, N. II.

THE GLOBE VENTILATOR COMPANY, Troy, N Y., have recently placed two 60-inch Globe ventilators on the Powers Hotel, at Richester, N. Y., to remove the heated air from its upper flors and render them more comfortable.

Schwing & Friswell, Bridgeport, Conn, have taken the contract to furnish the metal work on the new plant of the New York State Reformatory for Women at Bedford.

F. W. Stelling, Hartford, Conn., has the contract for the metal work on the new Belding House at Rockville, the New Hartford Town Hall, and the new Masonic Temple, Hartford.

THE WESTERN FOUNDRY COMPANY, Chicago, send us a copy of a catalogue which they have just issued, relating to roof creating, lawn furniture and stable fixtures. The illustrations are numerous and cover the leading specialties turned out by the company. In their announcement to the trade they state that they enjoy exceptional facilities for the manufacture of light gray iron castings and that they make patterns in wood, iron and brass, employing only skilled workmen. In their foundry they give employment to 100 molders, and make use of the best grades of iron and other material. They make a specialty of difficult cored work and also do coppering, japanning, polishing and nickel plating.

The Et. Paul Roofing and Cornice Works, Wabasha and Bridge streets, St. Paul, Minn., are now doing considerable work on school and court houses and other public buildings at various points throughout the Northwest. Advantage is being taken by co-operate authorities of the prevailing low prices for material and labor, in making improvements which have long been needed. The general demand is considerably lighter than in former years and has started up a little later in the season. Rock-faced steel siding is doing better than almost any other product of the factory. Shipments have recently been made as far east as Philadclphia and some points in New Jersey.

The Tunnbull & Cullerton Roofing and Metal Lath Company, 195 La Salle street, Chicago, have issued a catalogue illustrating and describing their sheet steel lath and Monarch fireproof partition, ceiling and floor construction. The catalogue comprises 48 pages and contains cuts of the lath and illustrations of its use in making partitions, floors and ceilings, together with views of numerous large buildings in Chicago in which this construction has been used. A. Feist & Co., Occidental Hotel, San Francisco, are agents on the Pactfic coast.

E. E. Noves, 584 West Lake street, Chicago, is to furnish the gutters, tin roofing, conductors and ventilating skylights for the large new factory of Norton Bros., Maywood, Ill.

Among the contracts recently taken by R. Hughes, 359-361 West Lake street, Chlesgo, can be mentioned the following: Steel ceiling and wainscoting for store of C. Bertrand, Ashland avenue and West Lake street; corrugated iron roof for distillery storehouse of M. Morris, Riverside, Ill.

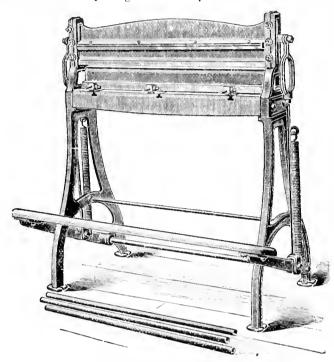
# Niagara Patent Tube Former.

The accompanying cut shows a machine for forming tubes of sheet metal recently put on the market by the Niagara Stamplog & Tool Company, Buffalo, N. Y. The work is done in a novel manner, and a patent has been granted on the method as well as on the machine. The special feature of this machine is that it does away with the manufacture of small tubes, to which the great objection was that in tubes of small diameter and considerable length

the mandrel would spring. The machine made by the Niagara Stamping & Tool Company, however, acts in a different way, the blank being curied between a punch and a dle. The machine represented is suitable for making tubes up to 86 inches in length and 1 inch in diameter, machines of other sizes being furnished to order, and by using a machine sizes being a machine sizes being furnished to order, and by using a machine sizes being furnished to order, and by using a machine sizes being furnished to order.

is affected by heat and cold and expands and contracts according to the temperature of the room in which it is placed. A cord running over pulleys connects the plaque with the regulator at the ash pit.

The new regulator is connected directly with both the chimney and the ash pit and consists of two slotted cyl-

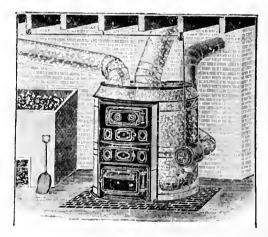


Niagara Patent Tube Former.

chine of sufficient strength tubes can be made of exceptionally heavy material. The work is done by means of a foot treadle, leaving the operator with both hands free, three movements being required to complete the tube. The working parts in the machine provide for the three steps required to shape the tube, so that the work is finished at one handling. The parts can be quickly removed and replaced with others for tubes of different diameters. The seam can be made either lap or butt seam.

### The New Howard Thermostat.

In the illustration herewith we show in connection with a hot air furnace inders separated by a diaphragm working alternately, one to increase and the other to check the fire. When an increased heat is necessary to secure the temperature at which it is set to maintain, the front cylinder is opened and air drawn down in from the cellar to supply the fire. When the temperature reaches the top limit this cylinder is closed, shutting off the air from the fire and the other cylinder opened. This concentrates the draft of the chimney on the ash pit, exhausting the air from it to supply the chimney and prevents the air that may leak into the ash pit from entering the fire to make it burn. By this means the draft of the chimney is effectually disposed of and the fire left in a state of very slow combustion.



The New Howard Thermostat.

the new thermostat made by the Howard Thermostat Company, Syracuse, N. Y. This thermostat is operated by the same highly polished nickle trimmed plaque as has been formerly used. The plaque moves the slotted cylinder as it

This new feature is said to greatly increase the efficiency of the thermostat. It is said to work equally well in connection with a steam or hot water heating apparatus and can be attached to any apparatus by a good workman.

# THE NEW TARIFF.

We print below the present rates of duty and those adopted in the Senate bill which affect articles in which our readers are especially interested:

Articles. Sheets-	Unu	Rate.	New	Rate.	Articles	Old Rate.	New Rate.
No. 10 to No. 20	10	per 1b.	0.70	per 1b.	Sheets and plates, wares or attices, of iron and steel—		are it atter
No. 20 to No. 25	1.10	**	0.50		Enameled or glazed with vitreous		
Thinner than Nn. 25 wire gauge		8.6	1.10		glasses.	**	
Corrugated or crimped,	1.40		1.10	**	Enameled or glazed with vitreous	(.,	35 %
Galvanized sheets, No. 10 to No. 20					glasses with more than one color,		
wire gange	1.750	• •	0.95€	* *	or ornamented	En	
No. 20 to 25	1.850	**	1.0 ℃	**	Aluminum-	(31.1	43.7
Thinner than No. 25	2.150		1 350		In crude form	17.1	
Sheets and plates pickled or cleaned					Brass -	19. In.L 19.	<ul> <li>lit* per th.</li> </ul>
by acid, and cold rolled, smoothed,					Bars or pigs	1.52 9	
not polished-					Aluminum-leaves, in packages of loc	1,00	10 7
No. 10 to No. 20	1.256	**	0.8250	5.6	leaves	Non-	
No. 20 to No 25	1.350	6.6	0.9256	4.6	Plates, rolled, called braziers' copper,	Sc per pack.	10 ~
Thinner than No. 25 wire gauge		**	1,225¢	**	sheets, rods, pipes and copper bot-		
Sheet iron or sheet steel, polished,					toms	25.2	
planished or glanced,	2.50	+ 6	1.75¢	4.6	Lead, and manufactures of-	CO	20 <
Tin plates (to take effect October 1,					Pigs and bars, and old	076 Aven 15	
1594)	3.20	**	1.2c		Sheets, pipe, shot, glaziers' lead,	-/ bell 10'	le perib
Tin, mannfactures of	อ้า ⊊		35 %		and lead wire	2.50 11	1 000
Castings-					Metals unwrought, and metallic min-	Nr. 475	1,250
Cast iron pipe	0.9.	4.6	0.6c		eral substances in a crude state, not		
Cast iron vessels, plates, stove					specially provided for	90.0	about the
plates, and irons, sad irons, tailors'					Mica	725 6	2015
irons, and hatters', irons, and					Nickel	104 non 15	20 %
eastings of fron not specially pro-					Zine or spelter, and manufactures of-	roc her 10°	6c per 15
vided for	1.2c	* *	0.8¢	* *	In blocks or pigs.	13.7	1.4 0
Malleable fron castings, not spe-					In sheets	916 +-	1.0
cially provided for	1.75c		0.9¢	4.0	Old and worn out, fit only to be	April 10	1.25¢ □
Hollowed ware	3c	**	20		remanufactured	11.7 "	0.75

## New Publications.

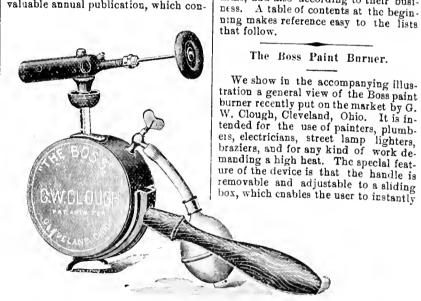
KITCHEN BOILER CONNECTIONS. A Selection of Practical Letters and Articles Relating to Water Backs and Range Boilers. Compiled from *The Metal Worker*. Size 6 x 9 inches; 129 pages; bound in cloth. Published by David Williams, 96-102 Reade street, New York. 1894. Price \$1.

The title page of this volume clearly indicates the scope of its contents. It is a work that has been called forth more especially by the demands of the plumbing and heating trade. For many years past the correspondents of The Metal Worker have frequently asked questions concerning kitchen boilers, and these inquiries have covered the widest range of topics related to this one subject. From the mass of valuable material that has been accumulating in our columns we have selected the articles of greatest interest and have edited and added to them in compiling this volume. In addition to the reprinting of the inquiries and answers as they appeared in The Metal Worker, we have also added introductory sections, and, where neces-sary, have prepared short articles on the different topics so as to make the treatment of the subject complete. The book is divided into two parts: the first on Water Backs and Boilers and Their Connections, and the second on Heating Rooms from Range Boilers. A good idea of the scope of the work may be gathered from the 11 chapter headings, which are as follows: Water Backs and Their Connections; Boiler Construction, Operation and Connections; Circulating Pipe; Multiple Connections; Double Boilers; Difficulties Met with in Everyday Practice; Relief Pipe and Vacuum Valve; Horizontal Boilers; Miscellancous; Heating Room from Kitchen Boiler; Radiators Heated from Coils in Stoves. The table of contents gives all the different articles in the book, while at the back is a full alphabetical index, so that no difficulty will be experienced in referring to any topic which is treated. The book is well printed, and engravings are found on nearly every page clearly illustrating the different subjects. We believe the work will meet the needs of a great many readers who have been puzzled with the curious action that sometimes takes place in water back

connections, and it will also be of assistance to those who have had but little experience in the work of setting range boilers.

HENDRICKS' ARCHITECTS AND BUILDERS'
GUIDE AND CONTRACTORS' DIRECTORY
OF AMERICA, 1894-95. Size 8 x 10 inches;
709 pages. Published by Samuel E.
Hendricks Company, New York. Price
85.

We are in receipt of a copy of this valuable annual publication, which con-



The Boss Paint Burner.

tains such serviceable lists of builders, contractors, manufacturers and dealers in all kinds of building supplies. It aims to be a complete directory of all the construction industrics of the country, and contains over 170,000 names, addresses and business classifications, comprising builders and contractors of material and construction in the building and kindred industries. While aiming primarily to be a list of architects and builders, the names include many other manufacturers and dealers in goods pertaining to building. There are, for instance, the names of over 9000 plumbers, gas and ateam fitters; over 2000 steam and hot water heating contractors; 2000 hot air furnace dealers; nearly 5000 roofers;

adjust it to any desired angle within the limits of the sliding box. The operator is not thus under the necessity of placing himself in an uncomfortable position when compelled to work in difficult situations. The manufacturer also alludes to the use of this device in drawing the temper of lathe tools, drills, &c., and of its serviceableness in the machine shop and in the factory for forging light drills, &c.

755 galvanized iron cornice makers; 518

dealers in wrought iron pipes and fittings; 525 dealers in plumbers', gas and

steam fitters' supplies. There are likewise lists of hot air furnace manufact-

urers, galvanizing works, gas heating and cook stove manufacturers, bath

heater makers, manufacturers of combination heaters, &c. The book is arranged alphabetically and is classified both according to the location of the

firms, and also according to their busi-

Verplank Colvin of Albany continues to urge the building of ship canals by the Eric to Oswego, N. Y., maintaining the present barge channel to Buffalo, and also a ship canal on the Champlain St. Lawrence route.

# STEAM AND HOT WATER.

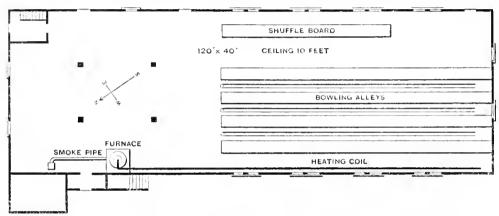
### A Combination System.

After experiencing some difficulty in warming the clubhouse of the South Orange Field Club, at South Orange, N. J, the heating plant illustrated in Figs. 1 and 2 was installed by W. B. Wilkinson of the New York office of the Howard Furnace Company of Syracuse, N Y. The plant has been operated during the past winter, giving supply, is located near the northern end of the building. In the center of the cone top is an opening more than 30 inches in diameter to provide an ample circulation of air through the heater. Owing to the length of the building hot air was not relied on to do the entire heating, as it would have been difficult to secure a flow of warm air to the lower end. A supplementary hot water system was employed, consisting I street, New York, are issuing a 12-page

temperature greatly in excess of what is ordinarily found in hot water heating plants, which fact is referred to as largely accounting for the success attained in warming so large a space with so little heating surface.

#### HEATING NOTES.

WILSON & ROAKE, 261-63 Front



A Combination System.—Fig. 1.—General Plan.

satisfaction to the architect, F. A. Wright, who remodeled the clubhouse, and to the 300 members of the organi ration A plan of the building that is heated is shown in Fig. 1. It is 40 feet wide and 120 feet long. That porfeet wide and 120 feet long. That por-tion of the structure immediately over the entrance is two stories in hight, as shown in Fig. 2, and is 40 feet square, a girder supporting the building where connection is made with an 80-foot ex-The average hight of the tension.

of a 2 inch flow pipe taken from the top of a U-shaped coil, and running on an incline to the lower end of the bowling alley, where an air cock was placed, the main dropping down and connect ing with a manifold heating coil composed of 386 lineal feet of 11 inch pipc. The return from the coil was carried back to the furnace below the line of the grate, where it ascended and connected with the return end of the U shaped heating coil. At the point where the return ran over to the coil a tee was placed, to which was attached a pipe running over to and connecting with another tee, one end of which connected with the pipe from the city water main, a stop cock being placed on the supply pipe. From the other end of the tee the pipe ascended to an

catalogue of their Sunbeam steam and hot water boiler. The pamphlet has a brown cover on which their address and "Summer heat for winter homes" are arranged in a gilt design. The title page shows their trade mark of the sun rising out of the sea. Then come a description and sectional view of their boiler, which is subjected to a cold water test of 150 pounds before shipment. The boiler is made in six a zes, Nos. 1, 2, 3, 4, 5 and 6, with grates having an area respectively of  $1\frac{1}{2}$ , 2,  $2\frac{1}{3}$ ,  $3\frac{1}{4}$ , 4 and  $4\frac{\pi}{6}$  square feet, and rated to carry 233, 400, 600, 800, 1000 and 1200 square feet of direct radiation. The last page is devoted to the Eagle brand adjustable elbow and to black and galvanized iron smoke stacks.

THE HEATING AND VENTILATING DE-

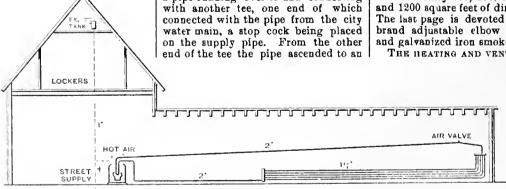


Fig. 2.-Sectional Elevation.

ceiling on the first floor is 10 feet. The building is of wood, and was not erected with the idea of making it an easy one to heat, ample opportunity being afforded for the entrance of air. In addition to this, large windows on each aide of the extension, which is used as a bowling alley, increase the difficulty of heating. A No. 48 Howard furnace, fitted with a galvanized iron casing, perforated with a number of 9inch holes around the base for fresh air

attic over the dressing room on the second floor, where it connected with a 15 gallon closed tank provided with a asíety valve at the top. The city is supplied with water at a pressure of 110 pounds, and the heating plant works under a slightly higher pressure, and after being filled the stop cock is turned off and the safety valve set to open at a pressure of 120 pounds Under this pressure the flow mater and upper pipes of the heating coll are brought to a

PARTMENT of the Smith & Anthony Company, Boston, is ably managed by W. M. Barber, and dealers will find few houses impossible to heat by the use of the Hub system and hot water apparatus. The company have made a special study of school house heating and ventilation and have prepared plans for some recently erected buildings.

CIRCULARS ISSUED under date of August 1 by the Ideal Boiler Company, Chicago, Ill., inform the trade that the Ideal steam boilers will, they expect, be ready for the market within 30 days.

McMann & Taylon, 42 Cliff street, New York, are sending out a little clrcular of their red rustless cement for the use of pipe fitters. It is said that it does not harden in the can like red lead and contains no poison. It is put up in cans and is always ready for use.

THE NEW JERSEY HEATING & MFG. COMPANY, 36 Mechanic street, Newark, N. J., speak very highly of the Gorton boilers they have set in engine houses for heating the buildings and keeping up ateam in the fire engines.

# The Little Giant Steam Heater.

Giblin & Co., Utica, N. Y., have just put on the market the Little Giant

boiler. The Little Giant steam boilers are made in three sizes: hight 41, 45 and 49 inches; diameters of fire pots 15, 20 and 24 inches, and adapted to supply 150, 215 and 300 square feet of direct radiation.

### Old Saws and Modern Instances.

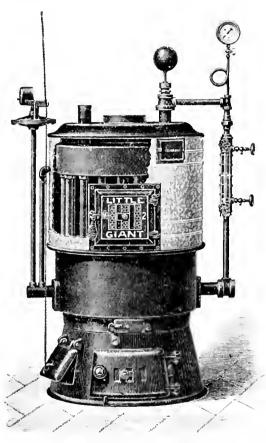
"Half a loaf is better than no bread." But a loafing workman is ill bred. "Believe that you have it, and you

"Believe that you have it, and you have it." Better make sure by checking your bill.
"Tall oaks from little acorns grow."

"Tall oaks from little acorns grow." Small items added make long bills you know.

"Those are helped who help themselves." Sometimes it is to the station house by a policeman.

"Nothing is lost if you know where it is." This applies to atock and time, which only show on the customer's account.



Little Giant Steam Heater.

steam heater, a broken view of which is shown in the accompanying illustration. It is put out to meet the demand for a low cost steam boiler, and it is made on the model of the Little Giant hot water boiler, manufactured by the same firm. It is similar in construction to the hot water heater except it has a larger chamber for steam. The manufacturers point out that the boiler will be available for heating small houses, and even those of reasonably large size, with steam. The vertical construction is alluded to as securing quick circulation and rapid generation of steam. In the illustration an improvement in the Little Giant boiler is shown in the clinker door over the grate, by means of which the clinkers, &c., can be drawn from the fire over the grate.

This device also secures for the boiler an additional depth of about 3 inches on each side of fire pot; thus, it is pointed out, increasing the body of the fire and the heating capacity of the

"One swallow does not make a summer." But awallows of intoxicants will cause a fall of finances.

"Competition is the life of trade."
If the trader can stand it and live.
UNCLE JOE.

Capt. W. Schlemick of the oil tank steamer "Standard" has informed the Hydrographic Office that he picked up, July 13, in Colough Bay, County Cork. Ireland, a "bottle paper" which had been thrown overboard February 11 last in latitude 48° 50', longitude 23° 30'. It was in a bottle sent out by the Hydrographic Office for the purpose of experimenting with ocean currents, and had traveled 660 miles in 152 days.

The Government crop report issued on last week gave the condition of corn on August 1 at 69.01, against 95 on July 1 this year, and 87 on Au-

gust 1 last year. The condition of spring wheat was 68.04, against 67 a year ago.

### SCRAP.

RITER BROTHERS & Co., Philadelphia, importers and dealers in tin platea and metals, have dissolved partnership, Robert Pearce, Jr., retiring. Charles J. Riter and Michael M. Riter, Jr., will continue the business as Riter Brothers & Co., at their present quarters, 1022 Race street.

Almost the entire plant of the Etna-Standard Iron & Steel Company, Bridgeport, Ohio, is in full operation. This concern have recently extended their list of manufactures, and they are now prepared to furnish to the trade promptly black sheets, tin and terne plate, bars, light structural shapes, small rails and specialties for the roofing and building trades.

THE LEECHBURG FOUNDRY & MACHINE COMPANY Of Pittsburgh, builders of rolling mill and tin plate machinery, have just secured a contract for the cntire equipment of the new plant now under erection by the Morton Tin Plate Company, at Cambridge, Ohio, for the manufacture of black sheets for tinning purposes. Included in the order are three hot mills with 24 x 32 inch rolls, three cold rolling mills with 20 x 32 inch rolls and three 36 inch doubling shears with engine attached, two 36inch vertical squaring shears, one Mosta patent pickling machine and roll lathe capable of turning 24-inch chilled rolls. The hot mills will be driven by a 32 x 60 inch Hamilton-Corllssengine, coupled direct, while the cold rolling mills will be driven by a 24 x 48 inch engine of the same type, coupled direct, both being furnished by the Hoover, Owens & Rentschler Company of Hamilton, Ohio. The buildings will be all iron, the main building being 60 x 200 feet in size, with two leants. The whole in size, with two leantos. The whole plant will be so arranged that it can be extended to six mills, and will be under the management of Ambrose Beard. The capacity of the plant at the atart will be 400 boxes of finished black sheets for tinning purposes every 24 hours. It is the intention of the Morton Tin Plate Company to add a dip-ping department to the plant in the near future.

THE BLACK DIAMOND TIN PLATE WORKS, Laurel street, Philadelphia, operated by Hy. W. Scattergood, are very busy on orders for Black Diamond, Arrow, Quaker City, Horse Shoe, Imperial and Peerless bright plates, and Black Diamond, Quaker City, Horse Shoe, Arrow and Laurel terne plates. Three pots are kept busy, and with a new pot about completed the production of these works will be about 1000 boxes per week. The new pot is built after ideas of Mr. Scattergood and others, and, it is said, embodies some important improvements. Upward of 40 hands are at present finding steady employment at these works.

At Kansas City on August 8 the lower grades of wheat were offered at 30 cents to 35 cents per bushel, at least 20 cents lower than corn. "A bushel of wheat will produce 15 pounds of meat, while a bushel of corn will produce but 10. Hence farmers are feeding wheat to their stock, which sells low, and marketing corn, which brings a high price." It is estimated that wheat thus converted into meat will bring about 60 cents per bushel.

# PLUMBING and GAS FITTING.

The Master Plumbers' Association of Rhode Island.

Fifty master plumbers of Rhode Island and a number of guests met at the Continental Steamboat Company's wharf, Providence, for a short sail down Narragansett Bay to Crescent Park, on August 9. Samuel Jackson and his Committee on Reception, Messra. Tierney, Brennan and Manney, were on hand as early as nine o'clock to receive visitors and members. There were present:

John F. Deedy, National State vice-

president of Massachusetts.

J. Warren French, president of the Boston Master Plumbers' Association. Jas. F. Davlin, Boston.

W. Emmet Crosby, national execu-

tive clerk.

A. A. McLsughlin, Worcester. P. Tierney, Providence. S. Jackson, Providence. Jas. C. Conroy, Providence. F. G Fales, Providence. Thos. Phillips, Providence. P. Mean, Providence. J. B. Manchester, Providence. Mr. Lally, Providence. J. Graham, Providence. W. Congdon, Providence. W. Mitner, Providence. Jno. Shanley, Providence. Walter Manser, Providence. Wm. F. Heck, Providence. L. P. Carey, Providence. F. C Carey, Providence. John E. Evans, Providence. Geo. Evans, Providence. C. B. Brennan, Providence. H. S. Root, Providence. A. F. Rosseter, Providence. L. C. Swenson, Providence.

D. Myers, Providence.
J. Manning, Providence.
T. Smith, Providence.
J. B. Morrisy, Providence.
W. S. Whipple, Providence.
Thos. Marion, Providence.
Jas. F. Mulvey, Woonsocket.
Jas. Openshaw, Newport.
Jos. Haire, Newport.
M. Butler, Newport.
P. J. Murphy, Newport.
R. L. Steil, Newport.
John Cremin, Newport.
A. L. Oman, Newport.

John Cremin, Newport.

John Cremin, Newport.

A. L. Oman, Newport.

David Fales, Pawtucket.

J. McCahey, Pawtucket.

Owen McPartland, Pawtucket.

Thos. Marion, Pawtucket.

John McCaims, Pawtucket.

John McCaima, Pawtucket. H. L. Borden, Pawtucket. On arriving at Crescent Park the

On arriving at Crescent Park the party immediately proceeded to one of the private halls and Mr. Jackson called the meeting to order and appointed Owen McPartland sergeant-at-arms. Letters of regret were received from John Mitchell, David Smith, Boston; Geo. Mahl, Hartford; John W. Green, Worcester; Jas. Ahern, Hartford; A. J. Clerkin, New Haven; J. B. Wirsnt, New Britsin.

Thos. Phillips received a vote of the later of the service of the later of the late

Thos. Phillips received a vote of thanks for his able report as State delegate of the Detroit convention. The convention went into executive session, which lasted several hours. Later the delegates and guests were

served with a fine dinner. Jas. C. Conroy read a paper which "hit" a large number of prominent master plumbers, and as each one received his "notice" a burst of merriment followed.

Reports showed the association to be in a very presperous condition. The Legislative Committee is preparing a bill to regulate plumbing in the State. The large attendance and business enthusiasm is an example for other States to follow.

#### Water Closet Seats.

With the advent of the earthenware water closets now in general use came flush tanks and seats for use in connection with them. Naturally these being of a different material were made by another set of manufacturers, and some strife to secure trade resulted. Seats of various shapes, methods of fasten-ing, kinds of wood and styles of finish and flush tanks to correspond were made by each manufacturer. To keep an assortment a plumbing supply house required considerable warehouse space, without yet having a sufficient stock of any one style to fill more than one large order. No little difficulty is found at times in matching parts when necessary, and the plumber has lost considerable time in the effort. A step is now being made by some closet manufacturers to arrange for a seat of a standard size, to be used with all of their closets, and the various kinds of closets are being made with a place for attaching the seat that will be uniform throughout the line. By this means much less warehouse space will be necessary, and little difficulty will be found in getting a new seat when necessary. Flush tanks of a suitable style can be adopted in connection, and a saving of considerable expense and trouble will result, without the slightest reduction in sales.

# Master Plumbers of Mon-

In response to a call from State Vice. President John Hickman of Paterson, Monmouth County, N. J., were at the Monmouth Trust Company Building at Asbury Park, N. J., August 10, for the purpose of organizing a Master Plumbore, Association of the purpose of organizing a Master Plumbore, Association ers' Association. Among the guests were John Mitchell, president of the National Association of Master Plumbers, and Edward Murphy from New York, both of whom made speeches on organization, and Secretary McNabb of Paterson, N. J.; President Elias Berla, who made a humorous speech, and ex-Secretary Alexander Don of Newsrk, N. J. The meeting was called to order by the State vice-president and the routine of organization proceeded without difficulty, 32 members being enrolled and arrangements made to affiliate with the National Association. The officers elected are president, James Borham, Long Branch; vice-president, F. Brown, Asbury Park; secretary, B. Crowell, Asbury Park, and treasurer,

John Flitcroft, Ocean Grove; financial secretary, Wm. McMahon, Red Bank. After the meeting refreshments were served, during which many speeches were made and the affair was voted one of the pleasant experiences which come the way of the plumber. The association embraces the entire trade with but few exceptions and is regarded as a strong one. They will lend their aid in organizing other associations in the State.

### TRAPS AND VENTS.

The "Proceedings of the Twelfth Annual Convention of the National Association of Master Plumbers" are out this week. The early publication is due to the promptness of President Mitchell and his clerk. Copies will be sent to all members by mail, and any one not receiving a copy must blame his local secretary, who has not sent to the national office names of all members. Members who have been thus omitted will receive copies by writing to President John Mitchell, 113 Hudson street, New York.

W. EMMET CROSDY, executive clerk of the National Association of Master Plumbers, is in Boston on National Association business. En route he stopped over at Provider ce to attend the annual outing of the Rhode Island Master Plumbers' Association, and then went up to Worcester to be with them on an excursion to Quinsigamond Lske.

M. J. REDMOND & Co, Wallingford, Conn., have recently made improvements on the drinking founts in at the corner of Center and Main streets, at their own expense, for the public benefit.

ALEXANDER DON, representing the hot water and steam department of DuBois & Darrow of this city, attended the organization of the Master Plumbers Association of Monmouth County, N. J., last week, at Asbury Park.

MURHEAD & MURHARD, plumbers and dealers in plumbers' supplies, at Portland, Ore., find a lively appreciation among their trade of the Perfect gas controller as a gas saver. They have set a number in their city and recently placed an order for two to be used in connection with 100-light meters on a 2 inch service pipe.

MANAGER BROWNHILL of the Instantaneous Water Heating Company, New York, shows a letter to visiting plumbers from E. J. Kraber & Son, York, Pa., commending the Acme water heater for supplying hot water where there is no fire in the house to heat the kitchen boiler.

Since our last visit to the Henry McShane Mfg. Company, 625 Sixth avenue, New York, manager Murray has made some very attractive changes in the reception room and showrooms. A handsome ensmeled Roman bath, bearing a beautiful ses scene, in the show window gives the visitor some idea of what may be expected inside. The reception room is ornsmented in keeping with the goods displayed, one of the

choicest decorations being a life size portrait in oil of Henry McShane. At one side a row of Italian marble lavatories is used to display various atyles of bash fixtures, cocks, traps, legs and brackets, all in full nickel. On the other side, at the center, is a full size enameled bath in which is painted a bathing scene and over which is a full nickel plated shower and needle bath with rubber curtain. At one end is a Mexican onyx lavatory, the back piece extending up and forming a frame for a French plate mirror. The onyx in this lavatory is very beautiful in its markings, which are deep pink in color. Beside the lavatory is a Sitz bath with all of the necessary fixtures. At the other end of the tub is one of the new Star siphon water closets, gilded on the bss-relief ornamentation. Above this is a new porcelain flush tank, decorated in the same way, making a very handsome outfit. Should the visitor appear on a stormy day a white porce-lain umbrella "vawse" of the same handsome style awaita the dripping umbrella. Having met one of the courteous salesmen, the main showroom with the baths and lavatories in various marblea, and water closets of all styles, are shown, the blue and gold and Tennessee marble bathrooms with their luxurious fittings, and the room in which lavatory bowls of every descrip tion fresco the walls and give hints to the buyer. Some of their new things of special interest are the Star siphon closet, the Baltimore siphon closet, which has a cast iron trap and support for an earthenware bowl, designed for tenement houses; the Morris slow closing siphon valve for flush tanks, and the Morris pressure regulator for reducing the pressure in the house when the street pressure is high.

THE INSTANTANEOUS WATER HEATING COMPANY, 838 Broadway, New York, recently sent six of their Acme water heaters to the J. L. Mott Iron Works, to fill an order from Cuba.

THE D'Este & Seeley Company, 29-33 Haverhill street, Boston, Masa are the New England agents for the Henry Huber sanitary goods, which are attractively arranged around the tiled walls of their extensive sample room, a varied line of water closets and lava torles being shown. A large line of bathtubs, from the steel clad to the white porcelain goods of English manufacture, are shown. This house, in addition, handles everything in the plumbers' supply line, brass goods and lead.

The show windows at 838 Broadway, N. Y., attract no little attention these days. In the south window all kinds of gas cooking and heating stoves and appliances are so arranged that the utility of each is apparent and wonder aroused as to how so much can be shown in so little apace, which is a secret of W. M. Crane & Co. In the north window the Instantaneous Water Heating Company display an Acme water heater in full operation, with thermometers showing water running into the heater at a temperature of 70° and flowing from it at the rate of 1½ gallons per minute, at a temperature of 140°. When run to supply water at a bath temperature it will supply 2½ gallons per minute, at a temperature of 100°. These water heaters are meeting an increased demand this year, and are being largely used by plumbers. A shipment of them has recently been made to England, where there are at least 25 manufacturers of apparatus for the same purpose. Beside the water

heater in this window the Brownhill Company show the effect of their Perfect gas controller, showing two fixtures, each with three gas jets burning, one without and one with the controller attachment. The gas used by each set of lights passes through a meter having an 8 inch dial, and one circuit of the dial hand is made on the consumption of ½ cubic foot of gas. The three jets on which the street pressure acts directly each burn from 6 to 9 feet of gas per hour, as the pressure varies during the day and evening from 18 to 30 tenths. The other three jets give a more regular flame and stronger light and burn but 4% feet each per hour, as the Perfect controller keeps the pressure on them regular. These two windows show much that can be turned to profit by the plumber.

JAMES S. DELANEY, who had resided in East Cambridge, Mass., during the past 30 years, died at his residence, 33 Winter street, last week, aged 57 years. He was well known in Boston, where he worked as a master plumber 25 years, having his place of business at the corner of Cambridge and Stanlford streets.

THE GLAUBER BRASS MFO. COMPANY of Cleveland, Ohio, have recently placed upon the market a complete line of fuller work of superior quality, claiming several important points of improvement in the construction of same. They say the goods are sold at prices that will permit them to be used in contracts as well as in custom jobs.

JOHN MCVEY of basin clamp fame removed his plumbing shop from the Metropolitan Block into one of Wheat Jackson's rooms, on East High street, Lima, Ohio.

THE FIRM OF WHITE & HUNT, Trenton, N J., plumbers, have dissolved partnership. The settlement of the firm's accounts will be made by Mr. White.

James Bolan & Co.. Dayton, Ohio, were authorized as plumbers in connection with the sanitary system of sewers and their bond in the sum of \$3000 was approved. The license is granted from date to January 1, 1896.

J F. CONRAN visited the plumbing trade in New York this week in the interest of the Standard Mfg. Company, Pittsburgh, Pa., and placed orders for enameled roll rim baths, Sitz baths and other enameled sanitary cast iron goods.

THE PLUMNERS of Marlboro, Mass., were registered by the Board of Health last week.

THE LOWELL HEATING & PLUMBING COMPANY, Lowell, Mass., have gotten into new quarters at 828 and 836 Middlesex street, and have added copperamithing as a branch of their business.

We are indebted to Peck Brothers & Company, New Haven, Conn., for Supplement No. 1 to their catalogue for 1893, relating to their Pneumatic Siphon water closets (Wells patents). The publication, gotten up in the elaborate atyle in which the advertising matter of this well-known concern is issued, is a pamphlet measuring 9½ x 11½ inches in size, which gives ample room for the display of the handsome cuts. There are 38 pages, illustrating nearly as many atyles of closets. It begins with sectional views of their Pneumatic siphon closets and accompanying text explaining their operation thoroughly, a few aentences are ad-

dressed to the architect and the plumber, and directions are given for setting the closet. Next is an account of the tanks for these closets, and another page is given up to the subject of closet seats. Then comes the catalogue proper, the closets shown being the Glencoe, in 4 styles; the Atlas in 6 styles; the Monitor in 12 styles; the Marvel in 6 styles; the Dorado in 6 styles. Descriptive particulars are presented, and prices of the different closets are given.

WE ARE informed by Alexander Don of Newark, N. J., that the plumbers of Union County, N. J., have all signed a call for a meeting for the purpose of organizing a master plumbers' association. The place and date of the meeting are yet to be decided, but it will probably be held some time next week.

C. W. TALCOTT, Rumford Falls, Maine, has built an addition to his plumbing shop, which increases it about three times the size of the old one.

A. N. Pasman, John W. Calvert and Valentine Werner have each been granted a plumber's license at Jersey City, N. J.

THE FOLLOWING Board of Examiners have been chosen under the plumbing act for Brockton, Mass.: Dr. F. J. Ripley, Superintendent Mitchell of the Public Property Department and T. J. Kisney. Hereafter any plumber beginning business in the city must pass a satisfactory examination.

A TEST CASE of the plumbing ordinance of Brockton, Mass., is now bafore the court. The offender failed to file plans and properly test some work done.

THERE is a prominently displayed plumber's sign in Williamsbridge, N. Y., which conveys the information that the plumber is "licensed to connect water."

A SPECIAL MEETING of the Council of Toledo, Ohio, has been called to look into the matter of properly repaving streets opened to make water and gas connections. Carelessness is charged against those who do such work, which is resented.

The few railroad earnings thus far reported for August show a considerable decrease, and it is necessary to bear in mind that the earnings in August of last year were \$6,344,000, or 13 per cent. less than in the same month of 1892. The July returns compiled by The Financial Chronicle cover 96,757 miles, and show a loss of \$7,988.645, or 20.49 per cent., although in June of last year the decrease on about the same mileage was \$1,765,527, or more than 4 per cent. Some allowance must be made for the fact that business last year was awelled by the World's Fair, but the shrinkage is nevertheless remarkably large.

The condition of cotton on August 1 is given as 91 8, an increase of 2.2 points over the July condition and 3.5 over that of June, the condition of June and July being respectively 88.3 and 89.6. The condition on August 1, 1893, was 80.4, or 11.4 points lower than the condition for the same date this year. The averages by States are: Virginia, 96; North Carolina, 95; Georgia, 85, Florida, 93; Alabama, 94; Mississippi, 97; Louisiana, 96; Texas, 85: Arkansas, 96; Tennessee, 94; Missouri, 96; Oklahoma, 93.

# HEATING DO PLUMBING.

### NEW WORK AND CONTRACTS.

A NEW heating apparatus is to be provided for the Franklin engine house at Scranton, Pa. It will be a steam plant and will be so arranged that connections can be made directly with the steamer, preventing the apparatus from freezing up and keeping the water at a high temperature continually. Contract has not been let.

THE WORK on the steam heating and plumbing for the deaf and dumb school at Morganton, N. C., is progressing very satisfactorlly. J. C. Brewster of Raleigh, the contractor, is now there making arrangements for setting the boilers, putting in the radiators, &c.

T. C. MILLARD will erect at Danbury, Conn., a residence that will be 40 x 56 feet, having a plumbing system and a steam heating plant.

ROACH & MCGUIRE, New London, Conn., have just completed the plumbing of the 12 Bartlett cottages on Fisher's Island.

J. DONOVAN, JR, is building a threestory business block, at South Norwalk, Conn., for which he will want a steam heating plant.

THE ARNOLD COMPANY, New Haven, Conn., have taken the contract for the plumbing of the new house which Contractors Clark & Thompson are building on Kensington street.

- E. D. BARTHOLEMEW, Mauch Chunk, Pa., has the contract for a steam heating plant in the Odd Fellows' Hall, at that place, and will use one of the Thatcher Furnace Company Champion boilers.
- C. W. CLIFFORD, Trenton, N. J., has ordered four Volunteer boilers of DuBois & Darrow, New York, for heating contracts which he has closed.
- I. C. Shumway is doing the plumbing in the hotel building at Seventy-second street, on the Boulevard, New York, using the New York siphon closet of the Henry McShane Mfg. Company, 625 Sixth avenue, New York.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C, until September 6, for the plumbing, gas piping and electric wire conduits for the United States Post Office, Court House. &c., Building at Charleston, S. C. Drawings and specifications may be obtained from the supervising architect, Washington, or from the superintendent at Charleston, S. C.

THE SCHOOL BOARD closed a contract with W. H. Crawford of Oshkosh, Wis., to furnish the steam heating apparatus for the Oshkosh Normal School.

THE SCHOOL BOARD of Covington, Ky., are considering a new heating plant for the Third District School Building.

Specifications have been prepared for the heating and lighting of the new City Hall at Paterson, N. J., and estimates for the work are now being prepared to be handed in by Scptember 5, when they are to be opened.

ISAAC COFFIN & Co, Everett, Mass., are placing their hot water heaters in the new houses of Franklin Pierce, Hampshire street, and E. M. Hall, High street. The firm have also the contracts for the heating and ventilat-

ing apparatus in the new high school at Winchester.

THE METAL WORKER.

JOHN C. STEWART and Thomas F. Savage bid \$8675 and were awarded the contract for heating and ventilating the High School Building, at Los Ange'es, Cal.

SPECIFICATIONS for heating the Webster School by steam were read and adopted by the School Board of St. Louis, Mo., at its last meeting, and the secretary was instructed to advertise for bids.

THE CONTRACT for heating and ventilating the Lincoln School Building, at Oskaloosa, Iowa, was awarded to Warren Johnson at \$989.

THOMAS F. HETHERTON bid \$1775 and was awarded the con'ract for a steam heating plant for School No. 13, at Jersey Clty, N. J.

THE LAWMAKERS of the Senate wing of the Capitol Building at Harriaburg, Pa., according to a local paper, are to have a \$12,550 lavatory and toilet room, with Russian and Turkish baths, equipped with Italian, Geneva, white and pink Tennessee marbles, mosaic tiling, bevel edge French plate glass mirrors, porcelain closets, with polished brass fittings, electro-bronzed stairway, mahogany doors and the like. P. H. Vaughn has the contract and has al ready begun work. It will be completed by December 1.

EAMES & LEE, Northampton, Mass., have taken the contract for plumbing and heating the residence in process of erection for superintendent L. C. Wright on Crescent street. The heating will be done with a combination steam, hot air and hot water apparatus manufactured by the H. B. Smith Company of Westfield.

Grassler & Gezelschap of Milwaukee, Wis., during the last few weeks have set the following: A No. 320 eight-section Richmond steam heater in the residence of Hugh Meca of Milwaukee, a No. 320 eight section Richmond steam heater in the residence of F. Meyers, a No. 320 eight-section Richmond hot water heater in Ebben Grassler's house and two No. 320 ninesection Richmond steam heaters in the school building belonging to the Grace Congregation of Milwaukee.

An APPROPRIATION is being considered by the City Council of Woonsocket, R. I., for a heating and ventilating plant for the new Boyden Street School.

FRANK I LESSARD & Co., Manchester, N. H.; W. L Blake & Co., Portland, Maine; Gco. R. Estabrook, Springfield, Mass., and J. W. Gifford, & Co., Attleboro, Mass., all report a lively trade in the Richmond steam and hot water heating apparatus.

GEO. E. THOMPSON, Newtonville, Mass., has secured the contract for heating the city stables at West Newton, and will use one of the Boynton Furnace Company's No. 37 hot water heaters.

THE WELLS & NEWTON COMPANY, 274 Dearborn street, Chicago, are to instal a steam heating plant in the S. H. Candee apartment building, Pearson and State streets.

Amono the contracts recently taken by B. D. Duggan, 207-209 Lake street, Chicago, can be mentioned the follow ing: Steam heating plant for the residence of Mrs. Mary Rosch, Hamblin avenue, nesr Ogden; hot water heating plant for the residence of J. Grassie, 299 West Court street; steam heating plant for the residence of David Hillman, 1625 Fulton street.

KEIM BROS. & MERTZ, 289 East Kirzie street, Chicago, have the contract for hot water heating in the residence of Wm. Sollitt, Washington boulevard.

FOSTER & GLIDDEN, 58 Dearborn street, Chicago, are to place a Farqubar hot water heater in the residence of W. H. Winslow, River Forest, Ill.

B. F. Kinden, Desplaines, Ill., is to place a No. 8 Furman boiler in the new school building.

The Carton Furnace Company, Utica, N. Y., have been awarded the contract for heating the Butterfield House. Two steam boilers to be used, and will be set in "battery." There will be 149 radiators used; every room will be heated, also the stores on Genesee and Devereux streets will be heated. There will be about 7000 square feet of radiation used. The kitchen will be equipped for steam cooking utensils and the laundry and dry rooms will also be fitted up with the latest steam appliances. This company also have the contract for heating the new residence of John Bryan, on Lansing street, with one of their hot water boilers.

SUPERINTENDENT REGAN is about putting in a new boiler at the Industrial School at Waukesha, Wis.

THE SCHOOL BOARD OF DETROIT, MICH, awarded contracts to Whitehead & Lewis for heating and ventilating the Campbell School, at \$3797; to the Acme Heating & Ventilating Company, for the addition to the Brownson School, at \$525, and \$990 for two hot air furnaces for the addition to the Ferry Street School, and to Webster & Meathe for a fan system of indirect steam heating for the Norvell School.

AT THE MEETING of the Board of Education of Covington, Ky., the contract for heaters for the Philadelphia Street Schoothouse was awarded to the Southern Heating & Ventilating Company of East St. Louis, at their bid of \$3403, with a guarantee to keep the heaters in repair for ten years.

L. A. MENEGAUX, the plumber, of Bergenline avenue, Union Hill, N. J., has secured the contract for the plumbing work on the six new houses to be built by Otto Schultz on Palisade avenue, between Dod and Shippen streets, West Hoboken.

At the town meeting held at Barre, Mass., last Saturday afternoon the report of the committee on heating and ventilating School House No. 1 was accepted. The sum of \$1950 was appropriated, and the plan for improvement will relatively change the whole building.

THE SMITH & ANTHONY COMPANY of Boston, Mass., are at work putting in the ventilating apparatus of the High School at Greenfield, Mass. The building will be ventilated mechanically by an electric motor.

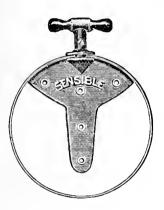
THE CONTRACT for changing the heating apparatus in the Martin & Luscomb Block, at Concord, N. H., has been let to Clifford & Hood. They are substituting one large Dunning steel submerged tube hot water boiler.

On Saturday, August 11, 29 oceangoing steamers sailed from the port of New York.

# THE RETAIL STORE.

### The Sensible Damper Clip.

The accompanying illustration shows a hot air damper clip that is being put on the market by W. E. Patchin, Rochester, N. Y. It is named the "Sensible" clip, and is furnished with either wood or iron handle. One half the handle stem is cast on the body of the clip, and the other half locks in it



The Sensible Damper Clip.

and is permanently secured by a machine screw. By this construction it is pointed out the handle never becomes loose, and is always parallel with the disk of the damper. The clip is described as cheap, simple, substantial and easily applied. The clips are sold by the Eastern Branch of the Cleveland Foundry Company, 82 North street, Boston, Mass., and A. L. Canfield, corner of Beekman and Pearl streets, New York.

# S. & P. Acme Steam Glue Pot and Stand.

The Stuart & Peterson Company, Burlington, N. J., are introducing glue pots and stand, as herewith shown. The cut indicates the manner in which the glue is heated by means of steam. The device is designed for use in plan ing mills, book binderies, furniture, refrigerator and hox factories; pattern shops, carriage manufactories, car shops,



The position of Electrical Goods in connection with the Hardware store is referred to in the following communication from a merchant in Ohio.

cation from a merchant in Ohio.

Some two years ago we added a line of Electrical Goods to our stock, and the growth of the trade has been something unprecedented, showing conclusively that the goods are a part of legitimate Hardware. We have found the necessary stock to consist of Batteries, wet and dry, Annunciator and Paraffined Wire, Staples, Tape, extra Zincs, extra Jars, Push Buttons, wood and metal, Switches, Bells, Floor Pushes. Desk Pushes, Portable or Hand Pushes, Double Silk Cord and the necessary Tools—Pliers, Pincers, Long Bits, Wire Gauges, Chisels, Braces, &c., and with the line, Speaking Tubes, Mouth Pieces, Tubing and Indicators.

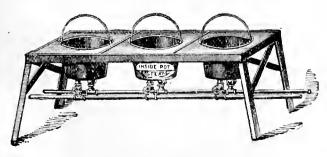
### Sturges Steel Churn.

The Chicago Stamping Company, Chicago, Ill., are putting on the market



Fig. 1 .- Sturges Steel Churn.

a steel churn, illustrations of which are given herewith. The churn is made of heavy steel plate thickly coated with chemically pure tin; while the stand, which is also of steel, is decorated in



S. & P. Acme Steam Glue Pot and Stand.

&c. The stands are made for holding from one to six pots, which are tinned inside, blue enamel finish outside, and provided with brass bails.

colors. The inside of the churn is amooth, making it as easy to clean as an earthen vessel. The cover is the diameter of the churn's mouth, and has 1

inch cork lining around the edge to prevent leakage. In the cover is a glass vent and peep hole for determining when butter comes and also to let off the gases. The manufacturers refer to the

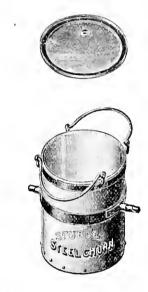


Fig. 2.-Interior of Churn and the Cover.

ease with which the churn may be kept sweet and clean, and to the fact that there are no hoops to fall off and cause the churn to leak.

### Christmas Tree Holder.

The Penn Hardware Company, Reading, Pa., are offering a holder for Christmas trees, as illustrated herewith. It consists of a base and cylinder made en-



Christmas Tree Holder.

tirely of iron, well riveted, measuring 8 inches across the base and standing 8 inches high. The cylinder is finished in ebony and the base in ebony and gold. The holder can be securely fastened by four wood screws through its base, while the tree is held in position in the cylinder by three set screws, for adjusting which a small wrench accompanies each holder. The advantages and finish of the holder are points emphasized by the manufacturers. The holders are intended to retail for 50 cents each.

# STOVE TRADE NOTES.

### St. Louis Stove Trade.

The stove trade shows signs of gradual improvement, and salesmen are sending in some substantial orders. In some acctions, notably Westeru Kansas and Nebraska, trade will be light, as crops are practically destroyed. Missouri, Illinois, Iowa and the South will be in position to buy quite largely, as the crops are more than satisfactory in the sections named. The sensation of the season is the remarkable demand for cast iron air tight heaters for coal, and sheet iron air tight heaters for wood. Of the latter there are being manufactured five different kinds by as many manufacturers, and the combined sale is expected to reach 30,000 stoves. The cast iron air tight heater is made especially for soft coal, and as they will keep fire from 24 to 36 hours without any attention, it is believed they will largely take the place of base burners.

The principal drawback to the stove business at this time, from the manufacturers' point of view, is the refusal of some dealers to place their orders for delivery later on. All the foundries here are running, and should the season be short, the St. Lovis manufacturers will be in excellent shape to take advantage of it, as they will be able to ship promptly any quantity which may be desired. With the tariff bill out of the way, there seems to he no good reason why trade should not rapidly improve. The outlook to-day is better than it has been for months, and it is to be hoped will continue to improve.

# The Thatcher Furnace Company.

The Thatcher Furnace Company, 240 Water street. New York, are issuing their 1894 catalogue, which contains 32 pages, in a colored bristol board cover, on the front of which their address and line of goods are worked into an attractive design, and the back shows their foundry and manufacturing plant, at Newark, N. J. The house was established in 1850 by J. M. Thatcher, and in the preface they state "Our aim is to reach the highest possible standard." The first pages describe and give directions for putting up the Thatcher tubular furnace, followed by sectional cuts showing it in a brick casing; in portable form with the flames indicated by colored ink; for a brick casing with double radiator, and with a hot water attachment, which is made in two sizes. The furnace has a series of cast iron tubes, just above the fire, which present a large air heating surface, and above them is a large radiator, against which the air strlkes after leaving the tubes and through which the amoke passes. The fire pot

is of the extended surface character. being covered with prongs 3 inches long, which in addition to heating the air, prevent a rush of air past the fire pot unheated. The Scorcher furnace has a heavy corrugated cast iron fire pot and dome section, to which a steel radiator section of the indirect draft type is attached. This is followed by the Thatcher ventilating heater for schools or halls which takes cold air from the floor and sends it heated from the top. A sectional cut and a description of their furnace grate are then shown. The No 80 Thatcher is a single oven right or left hand range with labor saving grate, high shelf, canopy and water back adapted for horizontal or upright boiler. The range is designed for use without being built in. No. 8 Thatcher is a double oven range of handsome appearance with all modern improvements, and needs no build-The remaining pages give some useful information and tables on furnace setting, and nearly 100 testimonials from owners of residences in all parts of the United States who praise the Thatcher furnace. The Champion ateam and hot water heaters made by the house are shown in a special catalogue which will be furnished on appli-

### Detroit Stove Works.

The illustrated catalogue issued by the Detroit Stove Works, Detroit, Mich, for the present season is quite different from the previous publications of this well-known concern. pamphlet is of oblong shape measuring 9 x 7 inches in size, bound in flexible covers and contains 96 pages. The front cover is an artistic piece of work, the name of the concern and their trade-mark being stamped and gilt embellished, the whole being on a acroll panel of chaste design. A half-tone portrait of William F. Tefft serves as a frontis-piece; then there are views of the Detroit Stove Works, of the Chicago and Buffalo houses, and a telegraphic code follows with particulars of prices and terms. A detailed description with broken views of the Jewel steel ranges for hard coal, soft coal, coke or wood follows; then come the regular notices with cuts of these ranges. six styles being illustrated. The Jewel steel being illustrated. ranges for hard or soft coal or wood are next similarly described in detail, followed by four illustrations. The Merit Jewel range comes next in 12 different styles. The Empire Jewel range is shown in six styles and seven sizes. Pacific Jewel range, which is for wood only, is shown in six styles and six sizes. The Atlantic Jewel range follows, and then comes a folding page giving a large view of the Sterling Jewel coal cook for 1894. It is a stove intended for burning hard coal, soft coal or wood, made in three styles and eight sizes. The Home Jewel wood cook is similarly illustrated with a large engraving, this stove being made in two styles and seven sizes and adapted for wood only. The Home Jewel, Marvel Jewel, Modern Herald, Jewel Range, Jr.,

Grand Jewel and Charter complete the assortment of ranges and cooks. remainder of the pamphlet is given up to heating stoves, the names being the Imperial Jewel, a large illustration showing the handsome design of this construction. Various smaller illustrations likewise show the other styles. Peerlesa Jewel, Signet Jewel, Radiant Jewel, Popular Jewel, Solar Jewel and Jewel base heater follow in the order named Particular prominence is given to the Detroit Jewel for coal or wood. The Oak Jewel is shown in four styles. Later on in the pamphlet many smaller atoves are illustrated, including laundry stoves, farmers' boilers, &c. To-ward the close is an illustration of the parts of the stove with list facilitating the ordering of repairs. An index to telegraphic code and general index complete the volume.

### Ventilating Back Linings.

How many atove merchanta thoroughly understand the function of the amall holes in the sides of a cook atove or range just back of the end door of the fire chamber? If iron linings are used they fulfill a most important function in ventilating the llning and preventing it from burning out. If prevening it from ourning out. It brick linings are used the ventilation is, of course, not so important. It may be assumed that everybody knows this, but they do not. Small points like this are often overlooked even by experts. Not many years since a large stove company less. years since a large stove company lost no less than \$5000 on this account. They had made a range which proved very popular, and in getting up something new two or three years later they embodied in it, as they supposed, all the good features of the popular range. The new range had not been in the hands of the trade more than three months before an order came in from a dealer for a new back lining. It startled the manager, as there had been no such experience with the old range, and he wrote for particulars, but was merely told that the lining had burnt out. That was the forerunner of a shower of orders for back linings. The pattern maker was called in, and the question put to him was, what changes were made in the construction of the range? He answered that none had been made in the interior construction, but only in the exterior, and he was positive that the two ranges were absolutely the same. Yet he could not explain why the back lining of the new one was giving out so rapidly while the old one was rendering perfect satisfaction. The manager was in a quandary. He went out to the sample room and sat down opposite specimens of the two ranges atanding side by side. Looking from one to the other he could see nothing that indicated any special change, until suddenly he saw that the ventilating holes in the side of the old range had not been duplicated in the new one. The side frame had been cast solid through some oversight. This cleared up the whole trouble at once. It had been taken for granted that the holes were in the pattern, and nobody thought of looking to see if that was the case. The pattern maker was dumfounded when he was shown the blunder. The little lesson in the necessity of ventilating the back lining cost the company \$5000, as above stated, in furnishing new linings and replacing defective ranges with new ones.

### M. Hertenstein & Co.

of Columbus, Ohio, have issued an illustrated catalogue and price list consisting of 50 pages of letter press, fully illustrated and bound in paper covers. The goods which the company manufacture are varied in character and embrace constructions embodying the latest improvements. The leading place in the work is given to the Art Royal, a new six-hole range intended for coal and wood. It is made in three sizes and has ovens 18 x 19 and 20 x 21 inches in size. Following this we find the Grand Royal range for wood only. This is also made in three sizes and the usual modifications. The Gem Royal is an attractive cook stove made for burning coal and wood and also for wood only. Under the name "Splendid" the company offer a substantial six-hole range having large fire pot, shaking and dumping grate, oven door opener, large pouch feed and cut top. The range is heavy in all its parts, especially in the fire box. Other goods include the new Gilt Edge two flue cook stove; the Plain Primate four-hole cook, shown in several varieties; the Daisy, for coal, and the Eastwood, a first-class wood cook. The heaters are represented with the Gilt Edge Oak occupying the place of honor. This has a large ash pan, of honor. This has a large asn pan, heavy fire pot and a draw center grate. The Hot Wave is a fancy square heater made in two sizes. The Laurel is a new Franklin, intended for using hard or soft coal or natural gas as fuel; the Beacon is a fancy direct draft parlor stove for hard or soft coal; the Winena is a light cannon stove made in two sizes, and the Gilt Edge is a laundry stove for burning coal. These, with others, complete the assortment.

### Dockash Stoves and Ranges.

The Scranton Stove Works, Scranton. Pa., have just issued from the press an exceedingly attractive cat alogue of the Dockash series of ranges, cook stoves and heaters, which they manufacture in almost endless variety. The printing is on a good quality of paper, each page being embellished with an ornamental corner piece carrying the name of the company and a fac-simile of their trade mark. The binding is in flexible covers of good quality, ornsmented with a side and back title in black. The frontispiece is a bird's eye view of the company's new works at the corner of Jefferson avenue and New York street. The first 90 pages are devoted to various lines of ranges ornamented in an attractive manner and embodying constructive features which have established for the goods an enviable reputation. They are offered under such names as Dockash, Easter Dockash, Wyoming, Lacka-wanna, Model Dockash, Dock Corn and the Dockash Excelsior. Under the name of Dockash the com-pany offer the trade a steel range made in three sizes and fitted with the latest improvements. The cook stoves are represented by the Universal, Oakwood, Longfellow, Gladstone, Nichols and the Dockash. The heaters occupy the remaining 20 pages of the catalogue

and include the Grand Dockash square parlor stove for hard coal, shown with and without oven; the Grand Garnet, another square parlor heater made in three sizes plain and two sizes with oven; the Mystic Dockash, with full revertible flue; the Dockash surface burner; the Central Sun; the Lacka-wanna and the Office King. Oher pages are given up to an illustrated de-acription of the Hypocaust system, which is referred to as something new in oven ventilation; caldrons, portable ovens, directions for ordering repairs; a list of obsolete patterns for which plates can be supplied and an illustrated notice of the Dockash grate. The catalogue is neatly printed and arranged and gives evidence of careful attention to details which are likely to be apprecisted by the trade.

### ODD PLATES.

T. H. Prest, president of the Prest Heating Company, Kansas City, Mo., was the guest of President Chas. Lyons of the Thatcher Furnace Company, New York, this week. The Prest Heating Company have the agency for the Thatcher tubular furnace in their acction.

THE COLUMBIA STOVE & RANGE COMPANY, with a capital stock of \$10,000, were recently incorporated at Columbus, Ohio. The incorporators are W. L. Whitman, H. A. Keye, E. J. Bird, Jr., W. G. McKnight and E. E. Corn. The object of the company is to manufacture and sell stoves and ranges.

THE TRADE will be interested to learn that J. M. Kelly, for many years secretary and treasurer of the Lexington Foundry Company, Lexington, Ky., and the patentee of the wrought steel evens used with such success in that company's productions, has resigned and will engage in other business. Owing to the connections that existed between Mr. Kelly and the company, of which he was an officer, he was compelled to refuse many applications for the right to use this invention from other atove manufacturers, the change referred to removing all obstacles in this direction.

Thos. W. Gorino, formerly with the Chicago branches of Fuller & Warren Company and Boynton Furnace Company, severed his connection with the latter firm on the 1st inst. to accept the position of superintendent of the furnace department of the William Miller Range & Furnace Company of Cincinnati Ohio. Mr. Goring takes up his new duties with the benefit of over 20 years' experience in the furnace business, having been connected with the Fuller & Warren Company alone for over 18 years.

S. E SLATER, for the past 18 menths connected with the William Miller Range & Furnace Company, Cincinnati, severs his connection as heating and ventilating engineer to take up a similar position with the Chicago branch of the J. F. Pease Furnace Company of Syracuse, N. Y., on the 14th inst. Mr. Slater has many friends in Cincinnati and vicinity in the heating trade, and leaves with their best wishes for success.

THE WEIR STOVE COMPANY Of Taunton, Mass., resumed operations at their plant on Thursday, the 9th lnst.

A BUFFALO PAPER of the 8th inst. is authority for the statement that the Cooperative Stove Company of that place closed their works on that day owing to trouble with their employees, about

60 of whom quit work. The trouble is said to have originated in the polishing department, where the work is paid for by the piece, the price being fixed by the company and submitted to a committee of the employees. The polishers, it appears, claimed that the amount allowed them on a piece of work was not in proportion to the allowance generally made for the same service, and objected when the committee took up the matter. The directors refused to make any concession, and informed the men if they did not accept the terms by Saturday night, August 4, the works would be closed. While a few men only are directly interested in the price paid, the refusal of the polishers to work necessitates the suspension of operations by the entire force. On the part of the company the statement is made that the price allowed for the work was fair, that the men earned good wages and that their hours were easy. The company expect the differences to be quickly adjusted.

THE PRESBYTERIAN BOARD OF HOME MISSIONS, at Asheville, N. C., has an extensive hot air heating plant in which they use Thatcher furnaces made by the Thatcher Furnace Company, New York.

H. C. LOUDEN, a Philadelphia hot air furnace and range dealer, spent last Monday in the vicinity of Beekman and Water streets, New York.

FLETCHER, RUSSELL & Co., Limited, the well-known firm of gas engineers of Warrington, England, have brought out a new series of automatic burners that have certain interesting features. The new burner is designed to extinguish the gas when the vessel is removed from the stove and relight it when placed back on the burner. In their announcement in one of the English papers particulars are not given of the operation, but it appears that a lever arm is located at one side of the burner, with a projection rising above the level of the stone, so that when the vessel is put on the stove the lever aim is depressed and the gas turned on. Reversing the operation shuts off the gas, presumably by the assistance of a spring. It is not stated how the gas is relighted, but possibly there is a pilot light which keeps burning all the time. Now that gas is being used more extensively in this country, devices of this sort have much interest.

THE HAGEY STOVE COMPANY of St. Louis, Mo., are distributing a little pamphlet of pocket size relating to Hagey's King heater. Directions are given for setting up the stove, while a large list of testimonial letters shows the favor in which it is held by those who have used it.

A VAPOR BURNER, consisting of a standpipe, generator with tube, needle valve, flue and spout attached, together with a base comprising annular communicating cups, inlet and ignition ports; also cylinders mounted upon the rims of the outer cup and inclosed by an annular slotted cap and perforated fluged cylinders extending from the inner cup in close proximity to the generator, has been patented by Edward Kells of Cleveland, Ohio, and transferred by direct and mesne assignments to the Dangler Stove & Mfg. Company of the place named. In the operation of the burner the needle valve is partially opened when the gasoline flows freely into the cup and the ignition port, the valve remaining opened while the oil is burned out from the cup. The combustion is supported by a vigorous draft of air through the perforated cyl-

The geninders already mentioned. erator as well as the standpipe being completely enveloped by the fire be-come readily heated for the generation of the vapor therein. The expansive force of the vapor then gradually depresses the gasoline in the standpipe and forces the vapor through the orifice of the needle valve. The swift current of vapor in passing through the flue mentioned draws in the necessary amount of air before entering the combustion chamber. The vapor being once formed it passes directly into the combustion chamber and Ignites through the slita of the burner.

THE CHICAGO & ERIE STOVE COM-PANY, Erie, Pa., have added to their assortment two styles of Invincible gas heaters, which are of attractive design and satisfactory construction. They are adapted for natural and manufactured gas, there being two sizes of each made with open front and two sizes with closed front. The company announce that the latter part of the present month their estalogue will be ready for distribution to the trade, and that it will contain many new illustrations.

THE CENTURY STOVE COMPANY. Dighton, Mass., are offering the trade an attractive sheet irou cylinder surface burner known as the Century and which is made in three s.zes. It is provided with draw center grate, nickel top rim and nickel rails. It is referred to by the manufacturers as being low in price and satisfactory in operation.

THE ROCK ISLAND STOVE COMPANY of Rock Island, Ill., have about completed a model office building for the transaction of their large and constantly increasing business. The structure is located on the corner of Second avenue and Fourth street, covering an area of 35 x 50 feet, and is two stories in hight, the material employed being red brick with stone trimmings. The ground floor, which is undivided, is used as a sample room and for exhibit. ing their hot water heating apparatus. The offices of the different departments are on the second floor, the trim being quartered oak, finished in oil. In the extreme northeast corner is the private office of A. M. Blaksley, adjoining which, on the north side, is the private office of Superintendent Frank Mixter. Next in order is the bookkeepers' department, adjoining which is the vault room. On the south side of the corridor, which runs the full length of the building, and at the east end is the office of Assistant Superintendent C. K. Mixter, while adjoining it on the west is the stenographers' room. Each partition is wainscoted 5 feet high, above which are 5 feet of glass in two panes, the lower ones being chipped glass, while the upper ones are plate.

"Some sample advertisements to boom your trade" is the title of a little pamphlet, oblong in shape, which reaches us from Buck's Stove & Range Company, St. Louis, Mo. The letterpress consists of a collection of newspaper advertisements which have been prepared by the company with a view of saving time and trouble to their cus-tomers. The collection is offered as suggestions with the information that additions may be made to cover other goods if desired. The idea is for the dealer to use any one or more of the sample advertisements as "copy" for the local printer, substituting his own name for the one which appears in the sample advertisement. The company state that they have been led to adopt this acheme through "realizing that

the wide-awake dealers who handle Buck's stoves and ranges are the busiest men on earth."

THE MARCH-BROWNBACK STOVE COM-PANY of Pottstown, Pa, favor us with a folder illustrating and describing their Crown warm air furnace, which is made in five sizes, portable form, for soft coal. It is made in two sizes for brick setting and the same number in portable form as a combination hot air and hot water heater. One page is de voted to a table of dimensions and prices of the furnaces. We also have from the company a circular of the Crown slde draft furnace which is made in three sizes and for which strong claims are made

BUCK'S STOVE & RANGE COMPANY, St. Louis, Mo., started up their foundry Monday 13th inst., giving employment to 350 men. This company ran their foundry full during all of last winter, and up to May of this year, when they shut down with what they thought was sufficient stock on hand to meet the requirements of the trade for nearly the balance of the year. Orders already received, however, have compelled them to start up again, and as the indications point to a shortage of stoves throughout the country before the season is over, this company have started up, and expect to run full during the balance of the year, and thus be in position to fill all orders intrusted to them. The demand for their Buck's Royal air tight heater and Buck's steel ranges has been exceedingly heavy, and their stock of these goods was nearly depleted. With their foundry running full, however, they state there will be no possibility of a shortage in these or any of the goods they manu-

THE DETROIT GALVANIZING & SHEET METAL WORKS of Detroit, Mich., are offering to the trade this season their Surprise air-tight heater, which is made of planished or amouth iron, with sheet steel linings and nickeled top ornaments. It is arranged to burn cord wood, chips, bark, roots, corn cobs and in fact anything combustible which can be put into a 13-inch round hole. makers claim that the stove will hold fire with hardwood for 36 hours, and will quickly heat an ordinary sized room from zero to 80°. It stands 24 inches in hight, is 2 feet long and 17 inches wide.

THE MICHIGAN STOVE COMPANY are furnishing their customers with artistic illustrations of their Maple Garland and Carbon Garland heaters. These illustrations are photogravures, on plate paper, which are intended to be placed in the book containing colored illustrations of Garland goods sent to the company's customers a few years since. The Maple Garland is a strictly firstclass base heating wood stove, furnished in two sizes as a full base heater and two sizes for direct draft. The Carbon Garland is styled a "parlor furnace" The Carbon and is intended for coal only. It has a seamless retort combustion chamber made in one piece and so constructed as to give a reverberatory flue. An ornamental jacket, which is easily re-moved, covers this stove, making it suitable in adornment for any parlor, rsnking with the highest grade base burners. It is furnished in three sizes.

The long drought in the West has been broken by rains which fell on Saturday last over a large part of Illinois, Iowa and Indiana.

Meetings of the Vapor Stove Men.

The regular annual meeting of the United Vapor Stove Manufacturers' Association was held at the Hollenden, Cleveland, Ohio, on Tuesday the 14th The gathering was an important one, all the manufacturing concerns in the membership being represented. Routine business was transacted, and among other things it was decided that prices and discounts on evaporating stoves should remain the same as last year. The election of officers resulted in the choice of H. M. Hubbard of Chicago, president; C. A. Stockstrom of St. Louis, vice president, and F. L. Olcott of Cleveland, commissioner.

On Wednesday, the 15th, was held, in the same place, a meeting of the Vapor Stove Manufacturers' Association of the United States, and the result of their deliberations showed that, practically, no changes were to be made in prices on generating stoves for the coming season. H. J. Trenkamp of Cleveland was elected president, E. C. Baxter of Mansfield vice-president and F. L. Olcott of Cleveland was reelected commissioner.

In view of the reports which have been current relative to the formation of a stove trust it was intimated that the manufacturers had never contemplated such combination and that the association will continue as heretofore.

#### St. Paul Stoves.

The St. Paul Stove Works of St. Paul, Minn., have opened a down town salesroom and general office at 71 and 73 West Seventh street. They have ample space for a fine sample room, which is not only large but well lighted in every part. In one of their show windows they display an Early Breakfast range which was in use for 25 years, is still in excellent condition and was purchased of the owner in order to show the durability of this line of goods. The company have recently brought out a stove specially adapted to the use of lignite, which is found so extensively in many portlons of the West. Numerous attempts have been made to utilize the great deposits of lignite for fuel, but no one had been conspicuously successful until the St. Paul Stove Works undertook a long series of experiments, which resulted in the invention of a special fire pot. This fire pot has a double grate. The upper grate is a plate with coarse openings, on which the fire is kindled. The lower grate is flat, with a cone projecting from the center into the middle of the upper grate. The cone is made with a series of steps, with perforations in the vertical portions or risers. When the lignite disintegrates by the action of the heat the portions which fall through the upper grate drop upon the lower one or on the steps of the cone, where they are held and burn. This peculiar form of grate was devised because it was found that to make lignite burn it was necessary to have a good draft and to hold the body of the fuel in such a position that it could not fall through to the bottom of the stove. In cook stoves or ranges the lower grate is provided with two cones. As lignite burns to fine ashes like wood, no dump is needed, but merely shaker. The grate is patented. The company have had their lignite stoves on the market but a short time, yet they are already receiving strong testimonials from those using them, and are (Continued on page 61).

# TRADE REPORT.

## The Iron Market.

Thus far in the Iron trade no marked volume of orders has been noted as a consequence of the removal of tariff agitation. It is probably too early to expect it. Yet there is, on the whole, a general disinclination to take a very sanguine view of the matter. It is acknowledged on all sides that some improvement in business should follow the adjournment of Congress. Those who enjoy worrying have now turned to the crop situation as a topic for mournful forebodings. The week has not been fruitful of happenings in the Iron trade. A new source of trouble threatens the Connellsville Coke region in the scarcity of water. Additional furnaces have blown in in Western Pennsylvania and Ohio, but still Bessemer Pig and Steel Billets hold their own fairly well. There is more inquiry for Wire Rods, but buyers and sellers are still apart. In Finished Material there has been more activity, but prices are again weakening under the active competition of the milis, every one of which wants to run full in order to reduce cost to a minimum. Some good orders have been secured in different parts of the country, but Pittsburgh and the neigh-boring districts have taken all the work.

Pig Iron.—As yet there are no indications in this market of a revival in the demand, and sellers remain sufficiently numerous to keep values down. There has been some talk of advancing prices on Lehigh brands, but nothing has come of the movement. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25.

Our Philadelphia correspondent says: The market is very steady for this article, the large increase in production during the past 30 days not having been felt as yet. Prices are firm all along the line, some claim that they are higher, and while that may be so in individual cases it is, neverthe less, true that Iron can be found at the old figures for moderate quantities. Alabama Irons are practically out of the race, the figures asked being entirely prohibitory for the time being. Western Irons are also less in evidence than they have been for some time, so that the trade is divided between Virginia Irons and those made in Eastern Pennsylvania. The demand is somewhat larger than it has been, but not enough to do more than offset the increased supply. The general market may be quoted about as follows:

Standard No. 1 Foundry X	12.50 @	
Standard No. 2 Foundry X	11.50 @	
No. 2 Plain	10.75 @	
No. 1 Soft	11.60 @	
No. 2 Soft	10.75 @	11.00

From Chicago our advices are as follows: Local Coke continues to monopolize the trade. Sales have been re-

cently made in localities that for some years had been wholly given over to Irons from other sections. General consumers in this vicinity are increasing their purchases and shipments are rapidly swelling. Few orders are now being placed which do not call for deliveries to begin promptly. Southern furnace agents report small sales, but Southern state that they are selling about all the Iron now available from their furnaces, some grades being in very short supply. The Tennessee Company have advanced prices this week 25¢ on No. 2 Foundry. A fair inquiry is being received for Soft Irons, but consumers are slow to contract at prices now ruling. Lake Superior Charcoal is still very quiet. Quotations are given as follows for

Lake Superior Charcoal	\$14.25 @	
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10.00 @	10.25
Local Coke Foundry, No. 3	9.50 🔞	10,00
Local Scotch	10,25 @	10.50
Ohio Strong Softeners No. 1	13.00 @	13.60
Southern Silvery, No. 1		
Southern Silvery, No. 2		
Southern Coke, No. 2		-11.25
Southern Coke, No. 3	10.50 @	10,75
Southern, No. 1, Soft	10.75 @	11.25
Southern. No. 2, Soft	10.50 @	10.75
Tennessee Charcoal, No. 1	@	
Tennessee Charcoal, No. 2		

From Pittsburgh we learn the Valley furnaces made some progress last week toward getting started, several furnaces getting enough Coke ahead, and promised, to warrant them in lighting up. The demand for Foundry Iron continues light, but the supply is very limited and prices are firm. For close delivery we quote as follows:

No. 1 Foundry.......\$11.75 @ \$12.60,eash. No. 2 Foundry.........10.75 @ 11.00 "

From Cincinnati we have the following report: There has been an undertone of confidence in the market for Southern Pig Iron during the week, as there has been for several weeks, and it has developed to an advance of 25¢ B ton on No. 2 Foundry. Some furnaces are asking still higher prices, but it is not what they ask, but what they can obtain, that establishes the market prices, and the rate fairly quotable for prices, and the rate fairly quotable for No. 2 Foundry is \$7 50 \$7 ton f.o.b. Birmingham, and No. 1 Foundry is \$8.25, but the demand for the latter is small. There is little No. 3 Foundry offered or wanted, and the price of that and of Mottled Coke Iron is without quotable change. There is more urging to sell Lake Superior Car Wheel and Malleable Iron, and much lower prices have been accepted. There has been some increase in the supply of fuel in the South, but there remains some minor troubles to be adjusted, which it is thought will be harmonized before long, and that supplies of Iron will soon be more adequate, but under the prevailing senti-ments prices are likely to be sustained. Quotations are as follows:

Southern Coke, No. 1 \$10.50 @	810.75
Southern Coke, No. 2 9.75 @	
Southern Coke, No. 3 9.25 @	9.5⊍
Ohio Soft Stone Coal, No. 1 14.50 @	15.50
Ohio Soft Stone Coal, No. 2 14.00 @	14.50
Lake Superior Coke, No. 1 12.50 @	13.00
Lake Superior Coke, No. 2 11.50 @	12.00
Hanging Rock Charcoal, No. 1., 16.00	17.00
Hanging Rock Charcoal, No. 2. 15.50 @	16.00
Tennessee Charcoal, No. 1 13.00	13.50
Tennessee Charcoai, No. 2 12.00 @	12.50

At St. Louis the situation improves very slowly. Consumers are gradually increasing their orders, and furnaces are holding their prices tirm. Production will shortly be increased by the blowing in of furnaces, but as most of the furnaces have a fair share of business on their books this increase will not materially affect prices. There is no disposition among furnacemen to solicit long time contracts, as they anticipate an upward move before the year closes. At \$10.50 No. 2 foundry seems bottom, and furnaces refuse to shade this price. We quote as follows for cash, f.o.b. cars St. Louis:

 Southern Coke, No. 1 Foundry
 \$11.00 @ \$11.25

 Southern Coke, No. 2 Foundry
 10.25 @ 10.40

 Southern Coke, No. 3 Foundry
 9.75 @ 10.00

 Southern Car Wheel
 16.50 @ 17.00

# Metal Market.

Pig Tin.—In a wholesale way during the past week prices have been gradually moved upward, though in quotations for small lots there is no change to report. There has been some speculation in the mean time. Official records show about 250 tons. Quite as much is understood to have been done outside. Purchases for jobbing and consumptive account have not varied much from ordinary lines, however, and the rise, happening as it does in the face of adverse statistical position, has peculiarities indicating that the Continental syndicate or the old leaders are exercising their power of manipulation. Certain it is that New York has danced to some foreign piping in the matter of making prices and conducting speculative deals. Indications are that some interest on the other side of the Atlantic is playing a bold game.

Copper.-The Copper market has a ragged aort of appearance, the result of rumors of another attempt to form one of those peculiar international combinations for mutual benefit and free selling while negotiations in that line were pending. There is good reason to be-lieve that enough American Copper to have a weighty influence remains on the European market. Over 195 000,000 pounds of ingots and bars, besides 24,-000 tons of matte were shipped thence from this country during the year ending July 1, 1894. Despite these heavy shipments an ample supply remains here. In small lots there has been no change in either Manufactured or Ingot Copper.

Pig Lead.—At one time during the week under review the wholesale price for common domestic advanced nearly \$\psi\$ a pound prompt delivery, owing to small stock available. Subsequent arrivals and offerings from the West brought the spot price down to former quotations for carload lots. The passage of the Senate tariff bill prompted speculators to offer distant future deliveries at lower figures, but little business was done, and buyers acted very indifferently. In small lots prices are a little stronger than a week ago.

Spelter.-Merely routine business, and little of it, has been effected in this market. The offering has not increased perceptibly and the demand has been hardly of average volume. Small lots of Spelter are unchanged in price and Sheet Zinc is the same as last reported.

Tin Plate.-The market in small lots has not altered quotably since our last writing. Stocks are very much broken up here and at the same time very light, and while the demand is also very small prices are not quotably lower in anticipation of the lower market that is thought will follow the expected reduction in tariff. The future is still uncertain and opinions differ as to the amount that the current market prices will be affected by the new rate of duty. Trade is very dull.

The monthly production of Copper in the United States has been as follows, according to John Stanton, the first column giving the aggregate returns from the reporting mines, which include the principal Lake, Montana and Arizona producers; the second being the metal from pyrites and from a number of smaller outside sources, being estimated:

#### American Product.

Reporting mines. Gross tons. Second half	Outside sources. Gross tons.	Total. Gross tons.
1892 59,239	6,287	65,526
First half	0.180	00.640
1893 62,470	6,478	68,938
Second half 1893 67,290	6,252	73,542
10.0		
Totals (893)	12,730	142,480
January 10,832	1.340	12,172
February 10,245	1,340	11,585
March 13,759	1,340	15,099
April 12,475	1,340	13,815
May 12 664	1,340	14,008
June 13,972	1,310	15,312
First half 1894 73,951 July 12,639	8,040 1,340	81,991 13,979
A 111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-1	

The product of the foreign reporting mines and the United States exports more on follows

Second half 1892	Foreign reporting mines. Oross tons. 39,655	United States exports. Gross tons. 17,980
First half 1893 Second half 1893		20,361 60,031
Totals 1893	81,495	80,392
January		7,717
February		5,590 7,187
April	7,3*5	6,209
June		6,140 6,976
First half 1894	45,293	39,769
July	6,960	7,226

W. W. FERRY, who for the past six years has been the Boston representative of the St. Louis Stamping Company, was recently made the recipient of a testimonial in appreciation of his business integrity and charming social character. A number of Boston's leading tradesmen in the Tinware line met in the office of the Dover Stamping Company, July 31, and presented him with a handsome silver and gold punch bowl, inscribed as follows: "Presented to W. W. Ferry by his business friends, August 1, 1894." Mayor Henry E. Ticke of Pawtucket, in making the presentation, said: "We meet here today to say farewell to our oleasant business relations with Mr. Ferry, and to wish him godspeed and good luck in his new field of action. In joining in this testimonial competitors forget their

rivalry and buyers their discounts, and all unite in tendering with the gift their hest wishes for Mr. Ferrry's prosperity Following are the names of the donors: W. S. Adsms, Thomas Barker, John F. Bingham, Dover Stamping Company, George H Guest, M. J. Goflin, James W. Lothrop, L. T. Milligan, F A. Mc-Mann, Thomas C. Newall & Co., Scavey Mfg. Company, Smith & Whittier, Usher & Osborne, W. F. Watters, H. E. Tiepke, Andrew Hawes and Clark-Sawyer Company. Mr. Ferry will join C. W. Dunlap, the veteran manufacturer of House Furnishing Goods in New York, and hereafter very largely manage the business, he having been with Mr. Dunlap, his father-in-law, from 1879 to 1888.

# Chicago Report.

Scrap.—Conditions rule as before, with little doing. Dealers quote the following list of buying prices, Chicago delivery: Per net ton. Per ib

Peri	ier ron	.rer m
No. 1 Wrought Serap	\$7.00	
Machinery Cast	6.00	.,
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2,00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&e	3.00	
Old Boilers—whole (Iron)	3.00	
" (Iron)—cut in single		
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler	0	••••
Tubes	5.00	
Cast Borings	3.00	
	4.00	
Turnings	8.00	••••
Horseshoes	0.00	5}√¢
Copper Bottoms		7 6
Copper Clips and Heavy	• • • •	
Heavy Brass		5 <b></b> ₩¢
Light Brass	• • • •	3 ¢
Pipe Lead	• • • •	21/40
Tea Lead	• • • •	2 ¢
Zine	• • • •	2 0
Rubber	• • • •	31/4

Anthracite.- In the absence of trade prices are considerably weaker. Carload lots of 12 net tons or over are nominally quoted as follows:

	Egg, Sto.		
		and Ch	
Chleago, Ill	<b>\$</b> 5.25	<b>₹5</b> 50	
Milwaukee, Wis	5,25	5,50	
Kansas City, Mo	8.45	8.70	
Council Bluffs, Iowa	8,45	8.70	
Lincoin, Neb	8.6)	8.85	
Sioux City, Iowa	8.45	8.70	
Aberdesn, S. Dak	8.50	8.75	
Dubuque, Iowa	6.55	6.80	
Madison, Wis	6.75	7.00	
St. Paul. Minn	7.75	8.00	
Burlington, lowa	6.75	7 00	
Des Moines, Iowa	8.20	8.45	
Davenport, lowa	6.55	6.80	
St. Joseph, Mo	8.45	8.70	
Leaveuworth, Kan	8.45	8.70	
Omaha, Neb	8.45	8.70	

#### Colorado Anthracite. COLORADO FUEL & IRON COMPANY.

Denver	\$8.00
Pueblo	8.00
Colorado Springs	8.60
Leadville	8.00
Cheyenne, Wyo	10.00
All points between Denver and	

Miseouri River....

E. Bissell, Son & Co., 12 Murray street and 15 Park Place, New York, among the Special Notices this week announce a sale for Tuesday, August 21, in which by order of the St. Louis 21, in which by order of the St. Louis Stamping Company, Granite and Blue and White Ware, seconds and first quality Granite Ware, discarded numbers, will be disposed of, together with a quantity of Solid Steel Market Cleavers. A sale is also announced for Wednesday and Thursday, August 22 and 23, when a large assortment of Table and Pocket Cutlery, Silver Plated Ware, &c., will be offered.

### CONDITION OF THE

# Hardware Trade.

THE PASSAGE of the tariff bill.
which it is generally assumed
will become a law, is, of course, the chief subject of interest which has come up during the week, but even this creates no excitement, as there are few lines of Hardware in which are few lines of Hardware in which the foreign manufacturer can hope to compete successfully with Ameri-can manufacturers in the home mar-ket at present prices. The dull-ness of trade for more than a year and the agitation of tariff changes have led to very low prices and the discounting of the effect of the reduction of duties. It is to be hoped that the removal of uncertainty regarding the tariff, particularly in view of the very low prices now prevailing for goods, will lead to more liberality in orders and an improvement in business generally. There seems little chance that the merchant will be compelled to mark down goods bought at present prices.

Advices from Chicago.—Jobbera report a better trade in Shelf Hardware than before the strike. Busiware than before the strike. Business has thus more than recovered its ground. Orders are steadily growing, not only more numerous but larger. Inquiries are being received from many country merchants as to prices on quantities, which indicate the growth of a sentiment in favor of laying in stocks. Crop reports continue of a mixed character, some localtime of a mixed character, some localities suffering from absolute failure, while others are in good shape. Taking the good with the bad, the outlook for the trade from this vicinity is not seriously discouraging. While the fall trade, which is beginning, may not be up to the full average, it is now expected to be considerably better than was feared in July ably better than was feared in July. Tin Plate and Tinners' Stock generally are in excellent demand and Builders' Hardware is in better request. Staple goods are beginning to move also. Collections are not up to what they were in June, but this is ascribed to the prevalence of harvest in the past

### Notes on Prices.

farmers in their fields.

two or three weeks, which has kept

Wire Nails .- The increase in demand previously noted continues and atocks are small and growing less, but on the other hand factories are prepar-ing to start up again. The New York price for small lots from store is \$1.30 to \$1 35

Advices from Chicago.—The inquiry is growing, but there is no other indication that the regular fall trade has opened. Factories are now getting into operation gradually, and the situation is growing interesting. Manufacturers are endeavoring to keep up prices, but will only succeed if the demand grows to equal their output. Small lots from stock are regularly quoted at \$1.20, with concessions to best trade.

Cut Nalls -'There is little change to note. The demand continues moderate, note. The demand continues moderate, stocks are light and prices unchanged. The store price for Cut Nails in New York is \$1.10 to \$1.15.

Advices from Chicago.— Merchants are only supplying their immediate needs, and therefore sales are confined

to small lots. Contracting for the fall trade has not yet begun. The local factory, however, manages to keep in operation. Small lots from store sell at \$1.10 to \$1 15.

Barb Wire.—The demand in the

East continues small, but more activity

is reported in the West. There is no change in prices.

Glass.-Manufacturers and jobbers report a fair but quiet demand for Glass, with hopes that as the season advancés trade will improve. Satisfactory prices for Glass appear rather the exception than the rule. An interesting statement is made that the total product of the season of 1893 94 was 3,189,552 fifty-foot boxes of American Window Glass, against 5,200,000 boxes in the season of 1892-93; also that if the present demand for Glass continues, unimportant though it may be, little available glass will be on hand by September 15. At a recent meeting of window glass manufacturers in Chicago, a wage committee was appointed to meet a like body from the workers.

## Trade Notes.

THE CANFIELD STOVE COMPANY, Rondout, N. Y., continue advertising their business in Stoves, Plumbing, Gas, Steam and Hot Water Fitting in a poetical vein. A recent issue of a local paper contains four verses on the Vapor Stoves handled by this concern.

THE UNITED STATES RADIATOR COM-PANY. Dunkirk, N. Y., in our advertising columns this week, call attention to their line of Splendid Radiatora. An illustration in the announcement shows the Corper Radiator made by this firm.

THE SPICER MFG. COMPANY Of New Philadelphia, Ohio, report large shipments of their sheet metal Trucks within the past week to Falcon Tin Plate and Sheet Company, Niles, Ohio; New Castle Steel & Tin Plate Company, New Castle, Pa., and Caldwell & Peterson Company, Wheeling, W. Va.

SIDNEY SHEPARD & Co., Buffalo, N. Y., have just completed the erection of a new galvanizing plant, built upon the latest plans and using the most recent methods. Their large business in Coal Hods and other galvanized ware has made it necessary to make this extension to their facilities.

THE OHIO MOP, PAIL & WRINGER COMPANY of Tolcdo bave been incorporated, with a capital stock of \$10,000.

ELI HILLSON, buyer for H. M. Hilson & Co., Boston, Mass., manufacturers and dealers in Tinware and Kitchen Furnishing Goods, will be in New York about August 23 on business connected with his firm. He will make his headquarters at 35 Warren street.

C. SIDNEY SHEPARD & Co., 23 and 25 Randolph street, Chicago, have issued their fall circular of seasonable goods, covering 24 broad pages. It is nicely gotten up, with pink cover, and profusely illustrated. A very large line of coal vases is shown, followed by numerous patterns of stove boards, coal hods, coal and fire shovels, pokers, lid lifters, coal tongs, skillets, fry pans, elbows, roast pans, hollow ware, dampers, teakettles, lanterns, &c. The firm are agents for the Palermo Mica Company, whose price-list is inserted, covering two pages of the catalogue.

THE HORNE & DANZ COMPANY, manufacturers of Tinware at 57 East Fillmore street, St. Paul, Minn., are pushing business as vigorously as possible, but report that for some time trade has been far from satisfactory. A contemplated enlargement of the plant has been deferred until times are more propitious.

(Continued from page 58.)

highly gratified at the manner in which sales are steadily increasing. The special stoves they have thus far brought out are the Early Breakfast lignite range and the Faultless liquite base burner. These using them state that they have no trouble in keeping fire overnight or in baking and cooking. The range is so made that it can be used for lignite or for burning hay and straw or for coal, by merely changing the grate. It is the intention of the company to put their lignite grates into nearly all of their coal burning heating stoves, so that they will be adapted to the use of either fuel. A new catalogue is in course of preparation which will show material additions to the company's line of Faultless heating stoves and Early Breakfast cooking stoves and ranges.

### R. Robinson & Sons.

105 Lake street, Chicago, issue an unusually handsome catalogue this year, comprising 114 pages. It is bound in a stiff black cover, with gilt title and a Maltese cross printed in red, which is the trade-mark of the Rochester Co operativa Foundry Company, for whom the firm are Western agents. A view of the Co-operative Company's foundries, at Rochester, N. Y., is given as a frontispiece, following which is a list of some of the additions and changes for this season in the Red Cross line of stoves, ranges and heaters. These are sufficiently numerous to show that the company will not permit dull times to chill their enterprise. The goods illustrated consist of the Red Cross range, Model Red Cross raoge, 1894 Monroe range, Red Cross Herald range, Prize Foxhall range, Standard Red Cross four hole range, Red Cross Junior range, Red Cross Dexter range, Red Cross Emblem range, Red Cross Talisman range, Special range, King Bee range, Model steel range, Magic Red Cross cook, Red Cross Challenge cook, 1894 Silver Cross cook, Black Cross 1894 cook, 1894 Famous cook, Red Cro-s Champion cook, Our Chief cook, and the following line of heaters: The Red Cross "A," a first class square parlor hard coal stove, fitted with the Eclipse grate; the Royal Red Cross 1894, a square parlor hard coal atove, with Eclipse grate; the Red Cross Bee 1894, a medium square parlor hard coal stove; the Red Cross Signal 1894, a lower priced square stove; Gilt Edge 1894, a full base heater; Red Cross Jewel, a revertible flue surface burner; Red Cross Carbon 1894, a square oak radiator and circulator for soft coal, with a highly ornamented fret work exterior and an inner body of sheet steel, Eclipse grate, large circulating flues, &c.; Red Cross Oak, Model Oak 1894, Live Oak 1894, Stella, Hero, Red Cross Triumph, Red Cross Cottage, Sylvan Red Cross, Ontario, Hazel, Tecumseh, Governor, Imperial and Signal. Tailor and laundry stoves are shown in considerable variety. Several pages are devoted to the Soperior process vapor stove, after which come oil stoves of new designs. The Parlor Splendid presents the appearance of a high class square base heater. The Novelty Splendid is patterned after the Franklin stove. Round body oil heaters are shown under the name of Splendid No. 15, Splendid B10 and Splendid B8. The concluding pages of the catalogue illustrate the Bermuda hot water heater, Bermuda hot air furnace, Hornet hot air furnace and Fearless hot air furnace.

### CONTENTS.

Editorials : Pag	в.
Tiu Plates and the New Tariff	41
American Dipping Works	1 I
Figuring for Contracts	41
	41
Cost of Work	
Electric Ventilation	41
The Letter Box—	413
Joining Porcelum Lined Soil Pipes	42
Leaky Block Tin Pipes	42
Piping from Stove Coil. Illustrated	45
Needs a Relief Pipe	12
${f A}$ Question in Trap Ventilation. Hins.	43
Connecting Kitchen Boiler to Furnace.	43
Recording Stove Sales	43
Stove Polish	43
Smoky Chimneys	43
Summer Test for Winter Heating	43
The Tin Shop—	
Elevation and Patterns of Offset El-	
bow. Illustrated	44
A System of Wages Contracts	45
Reofing and Cornice-	
Zone Rooting Abroad. Hlustrated	46
National Iron Roofing Association	47
Flashings	47
Niagara Patent Tube Former. Illus	18
The New Howard Thermostat. Illus	48
The New Taritf	49
New Publications	49
The Boss Paint Burner. Illustrated	49
Steam and Hot Water-	
A Combination System. Illustrated	50
Heating Notes	50
The Little Giant Steam Heater. Illus	51 51
Old Saws and Mcdern Instances	51
ScrapPlumbing and Gas Fitting—	91
The Muster Plumbers' Association of	
Rhode Island	52
Water Closet Seats	52
Master Plumbers of Monmouth	52
Traps and Vents	52
Heating and Plumbing-New Work and	
Contracts	54
The Retail Store—	
The Sensible Damper Clamp. Illus	55
S. & P. Acme Steam Glue Pet and Staud.	
Illustrated	55
Electrical Goods	55
Sturges Steel Churn. Illustrated	55 £5
Christmas Tree Holder. Illustrated Stove Trade Notes—	
St. Louis Stove Trade	56
The Thatcher Furnace Company	56
Detroit Stove Works	56
Ventilating Back Linings	56
M. Hertenstein & Co	57
Dockash Stoves and Ranges	57
Odd Plates	57
Meetings of the Vapor Stove Men	58
St. Paul Stoves	58
Trade Report—	
The Iron Market	59
Metal Market	59
Chicago Report	60
Condition of the Hardware Trade	60
Notes on Prices  Trade Notes	60
R. Robinson & Sons	61
Metal and Miscellaneous Prices	62
Labor Exchange—	-
Help Wanted	64
Situations Wanted	64

# Metal and Miscellaneous Prices.

## CHICAGO, AUGUST 16, 1894.

Tin-	Coke Plates.—Bright.
Straits pigs21¢	Elwood.—IC, 14 x 20
Imported Tin Plates-	IO, 20 x 2812.50
Uharcoal Plates.—Bright.	Roofing Plates.
Guaranteed Plates command special	Palm, IC, 20 x 28.
prices, according to quality.	cumpire, IC, 20 x 28
(IC. 10 x 14	Hickory, IC. 20 x 28
IC, 12 x 12 6 6.75 IC, 14 x 20 6 6.75	1X, 20 x 28
IC, 20 x 28 28 13.50 Calland and IX, 10 x 14 8 8.75	Alaska IX, 20 x 28@ 17.75
MelynGrade   IX, 12 x 12@ 8.75	Special, IC, 20 x 28
IX, 14 x 20@ 8.75 IX, 20 x 28	wesimpreinna:
DC, 124 x 17 @ 6.50	IC, 14 x 20. \$6.00 IC, 20 x 28. 12.00
IX, 14 x 20.	Elwood:
Allaway Grada   IC, 12 x 12@ 0.35   IC, 14 x 20@ 6.35	1C, 20 x 28, \$11 50
Allaway Grade, IC, 20 x 28@ 12.70	Kenwood: 1C, 20 x 28,\$11,50
Allaway Grade, IC, 14 x 20	Furmston:
Ooke Plates—Bright.	IC, 20 x 28\$11.00 Juno:
Per hor	IC, 14 x 20 \$6.75
Fieel Coke—IC, 10x14.14x20@\$6.60 IC, 14x20.90 b@\$5.25 IC, 14x20, 100 b	IC, 14 x 20.     \$5.75       IC, 20 x 28.     11.50       Illinots, Old Method:     1C, 20 x 28.       IC, 20 x 28.     \$17.00
	IC, 20 x 28
20 x 28	E. L.: 1C, 20 x 28. \$12.50
TX, 10x 14, 14 x 20	Jessie: IC 20 x 28 \$12.00
Charcoal Plates,-Terne.	Scott's Extra Coated, Stamped and
Guaranteed Plates command special	Scott's Extra Coated, Stamped and Resquared, IC, 14 x 20 \$9.50 Scott's Extra Coated, Stamped and Resquared, IC, 14 x 20 \$1.00
Prices, according to quality.	Resquared, IX, 14 x 2011.00
IC. 14 x 20	Scott's Extra Coated, Stamped and Resquared, IC, 20 x 28
IX. 20 x 28@ 14.00	Resourced, IX. 20 x 28
Worcester Brand and equal.—  IC. 14 x 20 6.00	Resquared, IX, 20 x 28 22,00  Neville, Stamped, IC, 14 x 20 6.25  " IX, 14 x 20 7.50  " IC, 20 x 28 15.00  Taylor's Old Style, IC, 14 x 20  (Stamped and Resquared) \$2,60
IC, 20 x 2812.00 @ IX, 14 x 20, . 7.50 @	" IC, 20 x 2812.50
20 x 2816.00 @	IX, 20 x 2815.00   Taylor's Old Style, IC, 14 x 20
Tin Botler Plates.	
Per box of Per box of 100 sheets.	Taylor's Old Style, IC, 20 x 28 (Stamped and Resquared)
T 14 T 28 . \$13.00 \$13.00	Taylor's Roofing, IC, 14 x 20
XX, 14 x 28 14.50 14.50 X, 14 x 81 14.50 16.80 XX, 14 x 81 10.50 17.50	Taylor's Roofing, IC, 20 x 28
XX, 14 x 81 16.50 17.50 Per box of	(Stamped and Resquared)
KA sheets	" IC, 20 x 28 (Stamped) 14.50
X, 14 x 56 29.50 16.50 XX, 14 x 56 32.50 18.20	IC, 20 x 28 (Stamped)13.50
X, 14 x 56     29.50     16.50       XX, 14 x 56     32.50     18.20       X, 14 x 60     31.50     17.65       XX, 14 x 50     36.50     20.90	Willow, IC, 14 x 20
20.00	Knoxall, IC, 14 x 20
American Tin Plates	Globe, IC, 14 x 20
Charcoal Plates.—Bright.	" IC, 20 x 29 12,50 " 12,50 " 610be, IC, 14 x 20 6.00 " IC, 20 x 28 12,00 " 1C, 20 x 28 12,00 " IC, 20 x 28 12,00 " (Redipped), IC, 20 x 28 17,00 " (Redipped), IC, 20 x 28 17,00 Cld Process*
Fiorence.—	10, 20 x 28
10, 10 x 14, 12 x 12, 14 x 20. \$6.50 1X, 10 x 14, 12 x 12, 14 x 20. 8.25	"_ (Redipped), IC, 20 x 2817.00
Palma.— 10. 10 x 14, 12 x 12, 14 x 20, 36 75	Old Process: IC. 14 x 20
10, 10 x 14, 12 x 12, 14 x 20. 46 75 IX, 10 x 14, 12 x 12, 14 x 20 8 76 Each extra cross \$2.00 and 20 x 28	IX, 14 x 20
double these prices.	Old Process:     1C, 14 x 20.     9,00       IX, 14 x 29.     11,00       IC, 29 x 28.     18,00       IX, 20 x 28.     22,00       H, B, L, Old Style:     10,14 x 29.     7,75       IX, 14 x 29.     9 25       IC, 20 x 28.     15,50       IX, 20 x 28.     18,50
Bettient Tierre Parked IC 14 v 98 to 95	H. B. L., Old Style:
Boyal extra IC, 14 x 20. 7.25 Merion, IC, 14 x 20. 7.00 Almond, IC, 14 x 20. 6.50 Mint, IC, 14 x 20. 6.25	IX, 14 x 20
Mint. IC. 14 x 20	IC, 20 x 28

Sheet Iron-
Blach.
Commen American Refined. Nos. 10 to 16
27
Craig's Pelished Sheet Steel
Juniata or first qualitydis.75@5%
Copper-
Ingot.  Lake
Discount on old list (except advance on cold rolled polished boiler sizes to $25\phi$ ), $25\%$ .
Copper Bottoms.  Discount on old list, 25%.  Seamless Brass and Copper Tubes. Base price, 17% c, Chicago, with extras according to size.  Copper, Brenze and Gliding Tube, 3\$\psi\$ additional.
Brazed Brass Tubing, (100 D lots.)
To No. 19 Inclusive.)   Discount, 40%.   Plain, 34 Inch up to 2 Inch
Plain, 3 meh and larger
Discount, 40%. Slab Spelter— Western Spelter
Sheet Zinc         \$1.76           600 b casks.         4.95           Loose sheets.         5.05
Lead
Solder—
The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.
Antimony— Cookson

- 1	Wrought-Iron Pipe-
ed. 10¢ 10¢ 10¢	14 and under, Plain
54 34	Cast-iron Soil Pipe— Cast-iron Soil-Pipe, Tarred; sizes 2 to 6 inches, inclusive
25≴	Leader Pipes-
nce to	Abendroth's Galv. Spiral Riveted
traa	Furnace Fittings— Discount from Excelsion Steel Fur-
ø 🏶	steel Roofing-
8.) 0.3 <b>6</b> .34 .38	S3.26 square   S3.26 square   Climax
-38	Metallic Shingles—
.48 .65 1.00 1.50	Cushman's
.48 .65 1.00 1.50 .38 clai.	Cushman's
.48 .65 1.00 1.50 .38	Cushman's
.48 .65 1.00 1.50 .38 clai. chai. nce. ts.)	Cushman's
.41 .48 .65 1.00 1.50 .38 ctal. ctal. nce.	Cushman's
.41 .48 .65 1.00 1.50 .38 ctal. ctal. nce. ts.)	Cushman's
.41 .48 .48 .48 .48 .48 .48 .48 .48 .48 .48	Cushman's
41.48.48.51.00 1.50 1.50 1.50 1.50 1.50 1.50 1.5	Cushman's

# NEW YORK, AUGUST 17, 1894.

The following quotations are for small lots.

Aluminum-	
No. 1 Aluminum (guaranteed ever 98%	С
pare), in rolling invots	G.
Small lots	G
100-B lots № B, 68¢	Ti
Ten lots ₩ D, 60¢	
No. 1 Alum'num (guaranteed to be over	G:
98≰ pure), in ingots for remeiting : 8mali lets	G
100-b lots	
Ton lets > D. 55¢	
No. 2 grade (guaranteed to be ever 04%	
pure Aluminum), cast in ingots for re-	
meiting: 8mall lots	
100-b lots	
Ton lots	B
	_B
Antimony-Cookson * 5,10%	L
Hallett's D. 100	A
Brass-	A
	P
Planishednet	8
Roll and Sheet25@30x	
Brass and Copper Tubes	lτ
Brazed Brass Tubing-	-
	١.
Brown & Sharpe's Gauge the Standard.	L
List April 9, 1894. Plain Bound Tube. Per b.)	1 "
Plain Round Tube, Per h	
%-in. up to %-in	L
%-in. up to % in	
%-in. up to be in	l
6 16-in.up to 3/4 in	T
8.16-In.np to \(\( \)\( \) in	G
16 in.up to % lo-in	
Smaller than 16 la	R
8 in. and larger	
	В
Copper and Bronze Tubing-	1
86 W 5 more than brass.	l s

Conductors—
Corrugated. Round or Square-
Galvanized, Locked Joints
Galvanized, Locked Joints60\$
Tin60%
Spiral Riveted-
Galvanized50%
See also Elbows and Shoes; Eave-
Trough Mitere; Strainers, Con-
ductor.
Conductor Strainers-See
Strainers, Conductor.
Copper— Bottoms, Pits and Flats 196 * D, net
Bottoms, Pits and Flats 196 # B, net
Ingot.
Lake
Ansenia Grade Casting936
Planishednet
Sheet and Bolt 15¢ & D, net, basis
Tubes - See Seamless Brass
Eave Troughs-
Lap or Sup Joint, Galvanised50&10% Lap or Sup Joint Terne60%
Lap or Slip Joint Terne 60\$
Eave-Trough Mitres-
Lap er Slip Jointlist, net
Elbows-
Plain Adjustable—
Tin
Crimped Tubing-
Re-Tinned or Galvanized355
Stove-Pipe-
Buffalo Four-Piece.
4% 5 5% 0 7 lnch, 80.78 .87 .90 .99 1.20 per dom90 \$
# Ost, mon tod Ost, 10, 10, 01,00

Elbows and Shoes-
Flat Crimp.
Tin35%
Tin
Corrugated.
Flat Crimp.
Daniel on Contare
Tin
Galvanized
Iron, Sheet-
Black. Common R. G. Cleaned
American American.
Nos. 10 to 10 b. 2.50 2.80d Nos. 17 to 21
37 00 40 04 30 % 9 70 . 3.004
Nos. 26 and 26. * b. 2.80. 3.10¢ No. 27. * b. 2.00. 3.20¢
No. 28
American B. B B. 4664% Russia, Planished, &c.
ing to assertment b. 111(@12)4
Genuine Russia, according to assertment
Galvanised. B. B.
Noe, 10 to 10,
Nos. 17 to 21
Non 25 to 28
No. 27 No. 28
No. 28 No. 29
Ne. 30
Lead-
American Pig334¢@4#
Plpe 614, 20

Tin Lined Pipe
and the summer of Mark Nice &
Manufacturers' list No.   105
Mitres, Eave-Trough-800  Eave-Trough Mitres.
Paints, Olis &c
Lead, Amn. White, in oil
ipirits Turpentine:
Putty:   10   40   10   10   10   10   10   10
800fing Material, &c.:       Asphaltum, Trinidad Refined, \$ ton.       100.       430.00@\$35.00       Asphaltum, Rock, \$ ton.       11.00       Coal Tar Felt, 2 Ply, \$ roll 108 sq. ft.       \$11.40       \$11.
Coal Tar Felt, 8 Ply, W roll 108 sq. it.
Boofing Pitch, # bbl \$2.25

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, August 25, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 Reade Street.
PHILADELPHIA220 South Fourth Street.
BOSTON146 Frankiln Street.
PITTSBURGH Room 509 Hamilton Building.
CHICAGO,59 Dearborn Street, cor. Randolph.
CINCINNATIRooms 22-24 Pickering Building.
ST. LOUISBank of Commerce Building.
CLEVELAND

BRITISH AGENCY: The Ironmonger, #2 Cannon street, London, England.

### Hot Water Heating.

The hot water method of house heating is undoubtedly growing in popularity, both with the people and the dealers all through the country. Some idea of the extent can be gained from a well defined impression that exists that one half of the radiation turned out by the manufacturers last year was for use with hot water. Preparations in a number of foundries this year have been made to supply a large demand for radiators for hot water use. both direct and indirect. People who have experienced difficulty in heating some rooms readily accept hot water as a means of heating, when it is explained that the radiator will be hot and throw off its heat in the apartment where it is located, no matter from what quarter the wind blows. Though all fitters are not as successful as they would like to be in installing hot water plants, the principle of the circulation of hot water is readily grasped and the details of the pipe fitting can be learned much easier than the apportioning of the proper amount of surface for a given room.

### Combination Heating.

From the use of an ordinary pipe coil in the fire pot of a furnace there have sprnng many devices for heating water to be circulated through radiators for warming rooms which are otherwise heated by a furnace with difficulty. Some trouble has been experienced in getting the water heater properly proportioned to the air heating capacity of the furnace, or in connecting just the right amount of radiation with it to get a satisfactory quantity of het air without beiling the water. Such satisfaction has attended the use of these apparatus that this method of heating is growing rapidly in popularity. One of the taking features is that a positive heat is afforded by the radiators and a posi-

tive change of air is the result of the constant inflow of hot air from the registers. As in many other branches of domestic engineering the authorities do not agree as to the best methods of installation. Some say that the lower floors of the building should be heated by hot air and the upper floors by the radiators, while others hold that a radiator and register should be placed in each room to secure satisfactory results. With the first method there is some possibility of the rooms warmed by radiators becoming overheated when the furnace is fired strong enough to keep those heated by hot air comfortable. With the latter method strong firing cannot produce such an effect. The installation of the double system is, however, more expensive.

### "Organized" Labor.

The labor leaders of the day are creating a class distinction which seems to be completely at variance with their professed principles of elevating the workingman and improving his condition. In their speeches and manifestoes they ring the changes on "organized" labor, as if no other kind of labor were worthy of their consideration or should receive recognition from the public, to which they are constantly appealing. There is a concerted effort to create an undoubted aristocracy in the ranks of workingmen, a privileged class with wellestablished rights and immunities. Demands are made, not in the name of labor, but in the name of "organized" labor as represented in trades unions alone. The man who works for wages may be a most exemplary citizen in every respect, rearing a family to become ornaments of society and to add strength to the commonwealth, but if he is not a member of any nnion he is utterly without place in the modern fabric of industry. The time was, and it is not far distant, when men were selected for political preferment or for responsible positions of a public character on the sole ground of their personal qualifications, and if the man so selected was taken from the ranks of the wage workers, no question was raised as to whether or not he represented a labor organization. Now, however, the man's fitness is subordinated to the great test of his fealty to a trade union. Only organized labor must be recognized, and a non-union man has no rights which any person is bound to respect. This is wholly wrong, as there are many men who are so situated that they cannot join unions or are not permitted to join them. The majority of wage workers are and will continue to be unorganized, and yet will do their proper share in developing and building up the

nation, and are not to be ignored when the true interests of labor are under consideration.

### Shop Sketches.

The ordinary manufactory, no matter what its character, can scarcely get along without the making and use of drawings or sketches in some form. Wherever there is a well established drafting room a definite system of drawings is likely to prevail. But it is in the small shop, or where few drawings are required, that the greatest laxity in methods is generally to be found. Aside, however, from finished drawings there is always a convenience in, and usually the necessity of, a simple method of making sketches and of retaining proper and permanent copies. if the originals are sent to the shop. Some persons go so far in the case of the smallest drawings as to trace and blue print them; others, in the spirit of greater economy, have adopted the plan of making pen and ink drawings in copying ink and securing therefrom the desired second copy. But still simpler and more convenient is the method recently adopted in some drafting rooms of making the drawing or sketch with an aniline pencil. If a pencil of proper softness be used, it is possible to obtain from the drawing at least three good letter press copies on tissue paper, and frequently with care four and five copies may then be made. After the lines have been set by the copying process they take on an effect that has caused some unacquainted with the method to inquire whether it was of the same character as the positive blue print and similar processes. When compared with the time consumed in making a pencil drawing, an ink tracing therefrom, and finally a blue print, before a drawing can be sent to the shop, the advantage of this scheme is evident. Furthermore there is no waiting for ink lines to dry or for sufficient sunlight to take blue prints.

Cable advices from Europe to the public press indicate the fact that British exporters are much pleased with the settlement of the tarlff question. Although not particularly enthusiastic over the Gorman bill, they prefer that measure to a continuance of the condition of uncertainty. Many traders express the opinion through the newspapers that the evil effects of the McKinley act upon the United Kingdom have been greatly overstated. The shrinkage of British exports in the first six months of 1894 equaled the shrinkage of the previous four years. The former was due to the fact that the traders were working from hand to mouth, ordering only what they immediately required, and thus remaining in a position to profit from any remission of duties.

# THE LETTER BOX.

the vent pipe well away from any win-

dow so that the air may not enter the

building. If a tree is near the cesspool

a pipe may be run up near its top. A

trap should be placed on the pipe dis-

charging into the cesspool, and a fresh

air inlet should be placed on the line of

pipe near the trap, but on the side away

from the cesspool. Having considered

these few of the objections to the use

of a cesspool, if one is to be used, the

following method of construction is

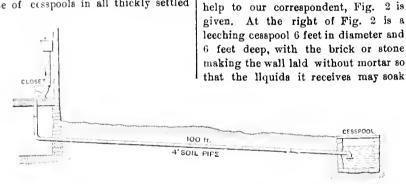
looked upon as having the greatest

number of recommendations, and as a

### Cesspools.

From W. J. S., Brooklyn, Iorca.—We have a good system of water works here and several of our citizens wish to have water closets put in their houses, but as we have no sewers I do not know just how to put them in to have them work successfully. I send a sketch, Fig. 1, of what I had thought of using, but think that there should be a trap at the cesspool. If what I suggest is not a proper system I should be glad to hear of something better, as I want to make a success of the cesspool.

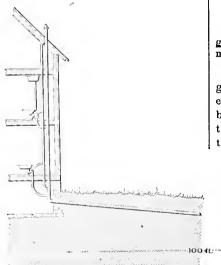
Note. - Laws are made to restrict the use of esspools in all thickly settled



Cesspools .- Fig. 1.-Showing Proposed Arrangement.

districts and in cities. It is unfortunate that a system of sewers does not precede or become adapted and laid at the same time that a system of water supply is arranged. More water is always used in buildings where it is to be had by opening a faucet. Consequently there is more waste to be disposed of and the use of modern water closet, lavatories and baths still further increases the waste. The disposal of this waste is a subject that has been given a great deal of study, and the best cesspool is regarded with little favor and its adoption should only be decided upon after a careful consideration of the possible evils that may arise from it. The stench that it oceasionally gives rise to is least objectionable, as it is apparent, but the gases that are given off are frequently of a dangerous character, showing clearly that a cesspool should be located at as great a distance as possible from all buildings. Though there is water supply in the town, it is quite possible that a number of wells are still used and the area of ground that will be contaminated by a leeching ceaspool should be considered in locating it, and, if the soil has a clay bottom, preventing the liquid from soaking down, a greater space should be given than if the soil is of a sand or gravel nature. If the cesspool is ventilated great care must be observed to keep the outlet of i

away into the earth. Its top should be a foot or more below the ground and covered with some material that will support a covering of earth. The earth covering will serve to prevent any stench arising and will largely disinfect



cumulated solid matter can be easily removed. The outlet from the receiver to the cesspool should be made by means of a T on the pipe, the top end being open to prevent it becoming air bound, and the bottom end extending down into the receiver so that the floating solids may not escape. At the opposite side of the receiver the soil pipe from the building should enter near the top. A trap should be placed on this pipe just before it enters the receiver and at the side of trap, away from the receiver a fresh air inlet should be placed on the pipe. The pipe should be run from the house with a good fall. and should run up through the house above the roof. If there are fixtures on more than one floor an air pipe should be used in addition to the soil pipe to protect the traps from siphonage.

#### Repairing Agate Ware.

From Collins & Richards, Cincinnati, Ohio. Answering the inquiry of "H. M." in The Metal Worker, August 11, Repairing Agate Ware, we send herewith a circular which explains itself.

Note.—A circular accompanies this letter relating to an enamel mending cement made by them, which is described as a thick, pastelike putty that is easily applied and can be used on tin, copper and cast iron as well as on agate ware.

### Plumbers' Soil.

From G. S., Waterville, Me.—Please give in The Metal Worker a receipt for making a good plumbers' soil.

Answer.—Make a thin solution of glue by boiling slowly in water until entirely dissolved. Then atir in lamp-black sufficient to make the mixture of the consistency of paint, simmering the compound over a slow fire for 15



Fig. 2.—Suggested Arrangement.

the foul air that comes up through it. Ample provision should be made for thoroughly cleaning frequently. Within a few feet of this leeching cesspool a water tight receiver of the same dimensions should be built and covered in the same way, and so arranged that the ac-

minutes. To test it, paint a space on a piece of pipe and rub it briskly with the dry finger; If it rubs off easily add a little glue, but if it sticks and takes a slight polish it is good. Common flour paste of good quality is used by many plumbers to stick pieces of paper

around pipe to prevent the solder spreading. After the joint is wiped, by cutting through the paper with a knife no trouble is experienced in remov-

### Recording Stove Sales.

From F. M. Borden & Bro., Philadelphia—Replying to query of "S. T. F." of Rock Hill, S. C., in The Model

ing of orders for stove repairs. Such a book carefully kept would not only be a great convenience to the dealer, but would tend to elevate the dealer in the opinion of his customers as a wide-awake merchant worthy of their patronage.

### RECORD OF STOVES SOLD.

	No. for current year
Purchaser	
Name of Stove	
Number of Stove	
Size of Oven	· · · · · · · · · · · · · · · · · · ·
Style of Grate	
Number of Holes	· · · · · · · · · · · · · · · · · · ·
Water Back or Water Front	
Right or Left Oven	
Open or Closed End	
Plain or Hot Air	
With or Without Skirting	•••••••••••
With or Without Reservoir	
All Dates on Stove	
Name of Manufacturer	· · · · · · · · · · · · · · · · · · ·
No. Pcs. Ware Furnished	
	***************************************
Cost	
Selling Price	
	IARKS.

ing the paper. Some grease the pipe before putting the paper on to aid in removing it.

### Pattern for a T Joint.

From J. J. W., New York.—Please publish in The Metal Worker a method for developing the pattern for a I joint between pipes, the profiles of which I give. The larger pipe is to fit against the smaller one, and the patterns for both pipes are desired.

Note.—Accompanying our correspondent's inquiry are profiles of two pipes, one circular and the other a segment of a larger circle. He does not exactly define how the T joint is to be made, but we would refer him to The Metal Worker Pattern Book, section 522, page 134, where pipes of different diameters meeting at right angles are shown, and also to section 523, page 135, where the same pipes meeting at one side of the center are shown. We think his case is probably covered in one or other of these problems.

Worker, August 18, we submit a sample page of a stove record book which is, we think, quite complete, and of

# Practical Test for Plumbers.

From G. S., Waterville, Maine.—I notice in The Metal Worker that by a recently enacted law Massachusetts plumbers must pass a practical test to secure a license, and would like to inquire of some reader of The Metal Worker what the practical test consists of and what is required.

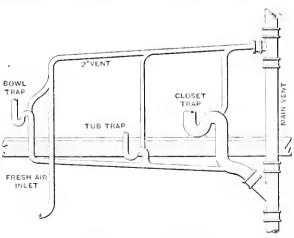
Note.—We shall be glad to hear from some Massachusetts plumber who has been through the practical test, with a description of what was required. Plumbing Inspector Tower of Springfield, Mass., presided at the practical test previously mentioned, and our correspondent might do well to write to him.

### Location of Fresh Air Inlet.

From C. F. B., New Lisbon, Ohio.— I submit a sketch of a job of plumbing that I propose to do, and would like to have the opinion of the trade on my idea of trap ventilation. The bath room is next to an outside south wall, and the fixtures are set in a row alongside it. My idea is to start 2 feet below the traps and run a pipe through the wall for a fresh air inlet from the outside. I then intend to connect a vent pipe 5 feet above the traps with the main soil pipe which runs above the roof and will take a separate vent from the top of each trap, and connect them with the main vent, which will be two inches.

Annunciators, indicating the name of the next atation, are in use on the cars of the Metropolitan and District suburban roads of London. They are aet, after leaving a station, by pulling a cord. One official controls the apparatus in all the cars of a train simultaneously. This method is found a great improvement over the old indistinct shouting of the names of stations by the conductors.

The proposed amendment to the New York State Constitution authorizing



Location of Fresh Air Inlet.

course if such a book is not complete it is useless. Our experience as jobbers of stove repairs has proven that all these questions are essential to the proper fill-

the Legislature to fix the hours of a day's labor has been reported unfavorably to the Constitutional Convention now sitting at Albany.

The Maxim Flying Machine.

From our contemporaries the London Engineer and Engineering we take the following account and drawings of the recent flight of the flying machine devised by Iliram S. Maxim. From our last named contemporary we take the following general description:

The Maxim flying machine is a large braced structure formed of steel tubes and wires, and is exceedingly stiff for its weight, which is about 8000 pounds, steam is generated. The feed pumps are placed on the deck beneath the engines, and are of variable stroke, so as to be adapted to the needs of the boiler. As they work at high speed, the valves are of large diameter—larger than that of the plungers. Pounding is prevented by a rubber bag on the suction, and spring pistons on the discharge. The total quantity of water in the boiler only amounts to 200 pounds, so that it is necessary that the amount of feed should be accurately adjusted. There is a very ingenious

shows Itself on a gauge attached to the pipe. By this most ingenious device an open faced pressure gauge is substituted for the usual gauge glasses. The weight of the boiler with casing, feed water heater, dome and uptake, is 904 pounds; with burner and water it is 1200 pounds. The heating surface is about 800 square feet and the flame surface 30 square feet.

The fuel burned in the boiler is gasoline, of a specific gravity of 72 Beaumé. It is carried in a copper vessel on deck, and is pumped through a vaporizer into

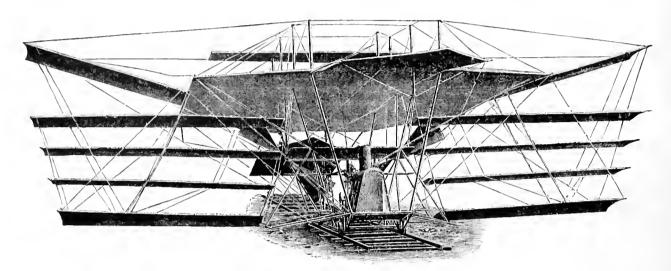


Fig. 1.-Perspective View of the Machine,

including men and stores. At its lower part it carries a deck on which the crew stand, where also the boiler, steering wheel and reservoirs of water and gasoline are mounted. At a hight of some 10 feet above the deck come the engines, each of which drives a screw propeller of 17 feet 10 inches diameter and 16 feet pitch, working in air. Above the propellers is the great aëroplane. Smaller aëroplanes project out, like wings, at the sides, the extreme width being 125 feet, and the length 104 feet. There are five pairs of wings, as shown in the illustration, Fig. 1, but the intermediate three pairs are not always used, and at the time of the accident these were not in place. At that time the area of the aeroplanes was 4000 square feet. With all the planes in position the total area is 5400 square feet. Forward and aft of the great plane are two steering planes carried on trunnions at the sides, and connected by wire strands with a drum on the deck. By turning this drum the steering planes can be simul-taneously tilted to direct the machine upward or downward, or to keep it on an even keel.

The chief interest centers on the boiler, Fig. 2, as unless this be made exceedingly light it is hopeless to expect that the machine will soar. The casing is made of straight tubes. In the boiler of the flying machine a feed heater is placed over the steam drum. The feed heater is constructed of steel tubes 18-inch hore and 12 inch thick; the water is pumped through it at a pressure 30 pounds higher than the pressure in the boiler, and is delivered through an injector like nozzle into the top of the downcomer pipe. The incoming water delivers its surplus energy to the surrounding liquid, creating a rapid and powerful current in the pipe, and consequently maintaining an active circulation in the small tubes in which the

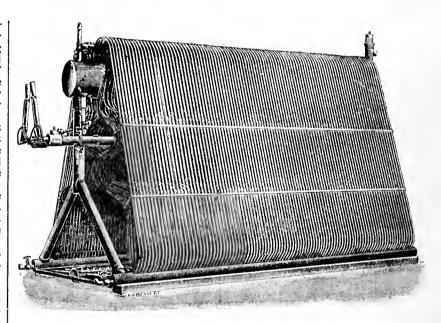


Fig. 2.—The Boiler.

THE MAXIM FLYING MACHINE.

water level indicator. A small pipe is led In a loop from front to back and from back to front of the furnace. It is then taken to the steam and water drum and led backward and forward through that in the same way below the water line. The whole is filled with water, and forms a closed circuit having two loops—one in the furnace and one in the water. Now, so long as the upper loop is in the water the pressure does not rise greatly beyond that in the boiler, because the heat taken up in the furnace is conveyed by the circulation to the water in the drum. But if the water level falls in the drum, then there is no outlet for the heat; the pressure consequently rises most rapidly, and

the furnace. The pipe from the pump is led into a vessel having a large gasoline burner beneath it. In this vessel the spirit attains a pressure of 50 pounds on the square inch, and a corresponding temperature, in which condition it is, of course, highly inflammable. The gas which it gives off is conducted by a pipe passing through the furnace to a jet, like that of a Bunsen burner, at the front of the furnace, and in rushing through it induces a powerful draft of air, with which it mixes. The combined charge passes through hollow fire bars, pierced on the upper surfaces with fine holes, and burns in 7650 separate flames. The arrangement is so powerful that the

pressure in the boiler can be raised from 100 pounds to 200 pounds in a minute. The air supply can be regulated at will, while the expenditure of gasoline automatically adap's itself to the needs of the boiler. The pressure of the gasoline vapor acts on a lever, which is balanced by a spring. If the feed is greater than the consumption the pressure on the lever puts a pawl in gear with a ratchet wheel, and through intermediate mechanism works a block along a slotted arm to reduce the throw of the gasoline feed pumps. If the feed is too small the opposite effect is produced and the throw of the pump increased.

There are two screws, each driven by a separate compound engine, having cylinders 5.05 inches and 8 inches in diameter by 12-inch stroke. The ateam is distributed by means of piston valves having 3-inch stroke and operated by eccentrics.

The boiler pressure when running is 320 pounds per square inch, giving in

Mr. Maxim's endeavors to propel a machine through the air is so marked that we think a description of this most remarkable contrivance will not just at present be out of place. It is not to be supposed for a moment that this machine approaches anything like perfection, but there can be no doubt that its performances considerably eclipse all previous efforts.

previous efforts.

This is what happened on the occasion of the flight of the machine:

The machine had traveled some 1000 feet, the latter 550 feet of which it had flown, a fact which is clearly proved by the impressions made on the inverted guard rails. It appears that suddenly the lifting effort became so great that the framework carrying the after retaining wheels became distorted to such a degree that the wheels ceased to perform their office, and the after part of the machine became free—the forepart, however, continuing to hold the machine down, but not for long, as the wobbling which ensued rendered

commenced to soar, and www ware those which were supposed to retain the machine by reason of the inverted rail above them. This they failed to do, owing to the too slender construction of the framing in their vicinity.

Above all this there is the great central acroptane, with a surface of some 1400 square feet. This, with the side wings and the steering planes fore and aft, all taken together, have a total area of 5400 square feet. At the time of the trial the area was 4000 square feet, as six of the side planes were found unnecessary. The total width is 104 feet, and the length 125 feet. The angle of the steering planes, which is about 7.25°, or 1 in 8, is controlled by a steering windlass, which when aparing turns them, very slightly, opposite ways, when the machine would soar whichever way it was being propelled. The total lift of the planes amount to 10,000 pounds. Another valuable property of these fore and aft scroplanes is their tendency to preserve the equilibrium of the machine in descent.

The boiler, Fig. 2, is a fascinating contrivance, replete as it is with so many novel features. It is a little like Thornycroft's, and a little like Yarrow's, but the tubes are necessarily much lighter and thinner than in either. Their shape is shown in Fig. 4. The water boxes at the bottom are 25 inches in diameter and 11 mm. thick. The water tubes are of copper and about ½ inch thick. The Y downtake is 3 inches in diameter. There is a forced circulation maintained by an injector in the upper leg of the inverted Y. This may be briefly explained as follows: Water is pumped into the boiler at 330 pounds to the square inch. This escapes into the boiler through an injector nozzle, and as the ateam pressure usually required is 300 pounds, it follows that there are 30 pounds devoted to this circulation. The cold water coming in combines with the hot water, increasing the gravity of the water in the downtake, and down it goes, so that the water coming in is immediately taken to the hot tubes. The nozzle is provided with a apring which always maintains the 30 pounds difference in pressure. A very convenient apparatus is attached to the feed pipe, by which it is possible to see at a glance exactly how many pounds of water per hour are entering the boiler.

Over the upper part of the boiler there is a second system of smaller tubes, also of copper, 13 inch dlameter and 15 inch thick, constituting the feed water heater, which raises the temperature of the water to 250° F. In this way the products of combustion, having passed between the boiler tubes, are brought into contact with the incoming water before escaping.

The boiler will and does make more steam than can be used. Its weight, with its feed water heater, casing, uptake, furnace and water, is 1200 pounds, 200 pounds being that of the water itself. The fuel employed is naphtha of 72° Beaumé. This is heated in the gasoline boiler by a part of its own contents, and delivered to 7650 jets at a pressure of 50 pounds per square inch. The average contents of this boiler is about 40 pounds.

The gas, when generated, passes through the furnace and then out at the other end of the ateam boiler. It then enters the burner through an injector, and the fall in pressure from 50 pounds per square inch to 1 pound per aquare inch is made to do work in sucking in air. A damper shaped valve may be

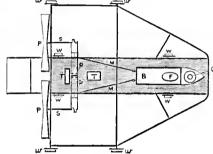


Fig. 3.—Plan.

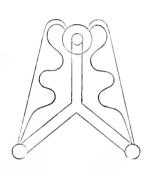


Fig. 4.-Vertical Diagram of Boiler.

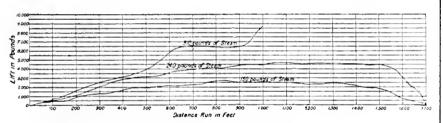


Fig. 5.-Diagram of Flight.

### THE MAXIM FLYING MACHINE.

the high pressure cylinder a differential pressure of 195 pounds, and in the low pressure cylinder 125 pounds. The cut offs are respectively 0.75 and 0.625 of the strokes. In the high pressure cylinder there is a very large clearance designed to prevent injury from water in case the machine, should pitch. The actual horse-power delivered to the screws is 363, when the engines are running at 375 revolutions per minute. Of this we (Engineering) are informed by Mr. Maxim, 150 horse-power are expended in slip, 133 horse-power in actual lift on acroplanes, and 80 horse-power in driving the machine, with its frames and wires, through the air. The thrust of the screws when the machine is moored is 2100 pounds, and when it is running it is 2000 pounds. We give these figures as they were supplied to us, omitting decimals. The total lift is something over 10,000 pounds, at a speed of 40 miles an hour, and with the scroplanes making an angle of about 7.25° with the horizontal.

From the Engineer we take the following and also engravings 3, 4, 5. The success which recently attended steering impossible, and the machine got out of line with the track. The left hand front wheel also got free, and the machine charged against one of the timber supports carrying the right hand guard rail, tore up the rail, which is simply a 9 x 3-inch plank, and did very great damage to its own frame work. The ride was in this way brought to a sudden stop, and it will be several months before it can be renewed. The total weight of the machine, including 600 pounds of water, 200 pounds of naphtha and three men, was about 8000 pounds.

pounds.

Fig. 3 shows the deck plan of the machine. P P are the two propellers mounted on the shafts S S, to each of which motion is given by a compound steam engine. B is the main boiler, delivering steam through the pipes M M. G is the gasoline boiler, which is kept charged with about 40 pounds of naphtha by a pump, p', automatically regulated, the supply being contained in the tank T', while the larger tank, T, contains the feed water, which is fed into the boiler by the feed pumps p. W W W W are the wheels which run on the track before the machine has

turned about so as to vary the air at will-full on blows the gas out, while with it closed a great cloud of black smoke is given off at the smoke stack. With a proper adjustment the tlame is a purple white and about 22 inches high.

The engines weigh 600 pounds, so that Mr. Maxim obtains more than 1 horse power for every 2 pounds of weight—which is in itself an achieve-The pumps weigh 100 pounds; the high pressure pistons are 5.05 inches in diameter; the low pressure 8 inches in diameter by 1-foot stroke. The high pressure cut off is at 0.75 of the stroke, that of the low pressure being at 0.625. The relatively high pressure in the low pressure cylinder is due to its earlier cut off, and to a large clearance in the high pressure cylinder which is allowed in order to protect the cylinder from injury by water in case the machine should pitch. The ports and steam passages are unusually The engines move with very large. The engines move with very little friction, owing to their exceeding lightness. The piston speed is estimated at 750 feet per minute.

An instance of the great care and

forethought with which the engines have been planned lies in the construction of the big ends of the connecting The bolts which secure the brasses are hinged on the end of the rod in such a way as to allow of any slight bending, in the event of the atrain on the frame work of the machine bringing the crank out of line with the cylinder. It must be remembered that the engine, cylinders, frame and rods are entirely made from sheet metal, so that there is every possibility of there being necessity for some such safeguard as this. By-pass valves are provided, so as to allow live steam to pass directly to the low pressure cylinders; thus if the steam pressure in the boiler should mount too high it will blow past the high pressure cylinders, instead of blowing off into the air, and the fall in pressure is made to do work in the exhaust from the high pressure cylinders, drawing the steam from the high pressure and driving it into the low pressure, thus causing more direct pressure on the low pressure than back pressure on the high pressure. In this way the engines may be made to develop fully 400 horse power.

The diagram given in Fig. 5 shows what occurred on the day of the dis-The ordinates show the lifting effort in pounds, the abscisse the distance in feet traveled. It will be seen that the dynograph ceased to record after a distance of 1000 feet had been covered. In other words-this was the point when the crash came.

All the frame work of this extraordinary machine is composed of hollow tubes. The exhaust from the main engines is conducted through them out at the back of the main acroplane, in order that the steam may not injure the can-The condenser is not yet a perfected detail. It is a luxury, and not essential to the flying properties of the machine. It is, of course, receiving Mr. Maxim's attention. The horizontal angle of ircidence in flight is to be maintained by a "gyrostat," which consists of a gyroscopic wheel, rotating, approached by universal joints, and conauspended by universal joints, and connected with the two horizontal accoplane rudders, so as to act upon them instantly - through the well-known property of the gyroscope to continue rotating in the same plane—in case there is any tendency of the machine to deviate from the angle of incidence. The whole of the apparatua is atayed by dlagonal wire ties.

In conclusion the Engineer states: What Mr. Maxim has done has been to, so to speak, make a bird that does not know how to fly. We believe that not know how to fly. We believe that the safe use of such a machine will always depend on the skill of the driver. Because we put on skates we do not expect to be able to skate right away. No more can we expect Mr. Maxim to be able to control this machine efficiently until he has had years of prac-In the same way there are birds tice. In the same way there are birds who tly well and birds who tly badly. This bird has only just been hatched. Let us hope that Mr. Maxim will not come to grief, "Icarus like," before he is fully fledged.

### Trade Education Abroad.

Most of the European countries have been shead of the United States in providing trade and technical education, as distinct from mere manual training, for their youth. Very generally the subject has been recognized as having such an important bearing on the national prosperity that trade schools have been established either directly under government auspices or else with the aid of the State. The latter condition prevails in Great Britain, where so-called technical achools-which generally embrace what are in this country regarded as tradeschools pure and simple-are springing up on all sides. In Germany, France, the Netherlands and Switzerland the governments are also paying considerable attention to the subject. Recent consular reports to the State Department from the two last named countries contain notable testimony to the efficacy of the system of training thus given in turning out an intelligent and educated class of crafts-

### Swiss Schools.

The Swias, in particular, are famed for their manual dexterity, and their country is noted for its educational advantages in general. Probably no nation, in proportion to its territory, has so many industrial and technical schools. They receive both national and private assistance. The federal government, we learn, gives subsidies to not less than 157 of these institutions, more than \$330,000 having been thus paid out for their support during the past seven years, while municipal and private subscriptions have raised the total to above \$1,500,000. Thus the Swiss expend nearly \$300,000 a year to aid their boys in learning a trade, and this, with a total population of only 3,000,000. Above 17,000 young Swiss are attending these trade schools at the present time. The result, as it has been said, is that "young men now learn trades in Switzerland with zeal, looking for the same honor and the same reward that is anticipated from the adoption of professions. The basis, however, on professions. which they build is more solid, the aim more elevated than ever before." The Swiss special training has elevated the trades and raised the mechanic in the eyes of the world as well as in his own A Swiss who has gone through a full trade school course understands his calling perfectly and has no trouble in securing employment at the highest Wages.

### Trade Schools in Holland.

In Holland there are 18 genuine trade schools. The manual training school, which aims only to impart to the pupil a general manual facility withour reference to his subsequent vocation, such

as is so largely in vogue in the United States, is there virtually unknown. The one purpose of the Dutch trade achools is to "train efficient mechanics." Employers of skilled labor are the most pronounced advocates of the achools, which, they assert, improve the grade of skilled labor, making it not only more profitable to the employer, but more marketable. All the schools were established and at first maintained by private enterprise, but all except one are now sustained in whole or in part by municipal or governmental subsidy. The exception is the trade achool at Breda, which was founded by one of the earliest and most ardent advocates of the trade school idea in the world, Dr. Van Cooth, who at his death left a sufficient aum of money to endow it handsomely. With a population of only 22,000, Breda sends regularly 120 or more pupils to the school. The result in Holland has been, in the words of the report, that

"Employers agree in testifying that the work of the boy trained three years in the trade achool has a higher marketable value than the work of the boy who, deprived of the school privilege, has been compelled through poverty to learn his trade in the shop. One is an all-round mechanic, who has learned the 'why' of things; the other, a drudge, without resource of adaptiveness, whose work is, and always will be, purely perfunctory."

### A Belgian School.

At Charleroi, in Belgium, is an important trade achool, which was established by the Provincial Council in 1865, which has an annual government aubsidy of \$2605. The average attendance at the school is 934, and among the trades taught are joinery, blacksmithing, boiler making, masonry, molding, ateam fitting, &c. Belgium also maintains other schools of a similar nature, all of which have been found to be of the greatest benefit to the country at large.

### Trade Education in Austria.

In Austria the system of trade schools has been brought to a very high state of perfection. The Gewerbe Schools (the purely industrial or technical achools of the country) impart instruction in various branchés of trade, and, as we learn from a European technical journal, especial attention is devoted to such branches as may form a distinct specialty in the district in which each school is located. The pupils are, it is atated, scientifically prepared for their special manual calling far more satisfactorily than if an apprenticeship had been served in some ordinary workshop. Whatever the art in which the pupil is receiving instruction, whether in metal work, in engineering, or in carpentry, carving, molding or building, every effort is made "to impart to him a full knowledge of the why and the wherefore of what he is doing and the beat means of doing it." The consequence is that the pupils, thus trained, become masters of the trade they have studied in much shorter time and more thoroughly than could be the case under the old apprenticeship system.

The general consensus of opinion among those who have studied the question of trade schools, as illustrated abroad and in this country, points to the conclusion that such a means of definite industrial training is an absolute necessity under present day conditions if the American mechanic is to keep up to the high standard he has

hitherto maintained.

# PLUMBING and GAS FITTING.

### Montreal Master Plumbers.

The plumbing by-laws of the city of Montreal, which we published some time ago, with certain modifications, became law on July 1 last. As a result the Master Plumbers' Association of that city, which was at one time a very active and progressive institution, but had become dormant, has been revived and we may say amended and enlarged, taking into its list of members all master plumbers of good repute in Montreal and vicinity. The vicinity means a number of by no means small towns which are attached to the city proper as auburbs, but do not form part of territory covered by the city charter and are not affected by the city plumbing bylaw. It is intended to use the influence of the Montreal association in encouraging the formation of similar associations in the different towns throughout the Dominion of Canada and ultimately make efforts for affiliation with the United States Association, so as to cover the ground in the most complete manner. The following is the list of the newly elected officers:

President, J. Lamarche. First vice president, Jno. Date. Second vice-president, Alph. Cham-

pagne.
Third vice-president, H. Paddon. Secretary, W. M. Briggs. Corresponding secretary

French. secretary. Joseph Gibeau.

Corresponding secretary, English,

J. W. Hughes.

Financial secretary, P. Leclaire, Jr.
Treasurer, W. A. Stephenson.
The following committees were
elected, the first name being the chair-

Sanitary: J. W. Hughes, Jno. Wate, James Mattison, H. Sigouin, J. C.

Arbitration: P. Carroll, Alph. Demers, G. Yon, G. Rosser, H. Baillie. Auditing: J. Watson, A. Desforges, Theo. Jacotel.

Legislative: F. Brunet, D. Gordon, D. Ouimet, Jno. Burns, P. Leclaire, Jr. Apprenticeship: Wm. Brittan, E. C. Mount, A. Cardinal, J. Sadler, A.

Blais. The business of the association is conducted in both French and English, an interpreter being appointed for each meeting. The first regular business meeting was held on the 16th, and from the attendance, general interest and enthusiasm manifest on that occasion it would require no spirit of prophecy to predict that the Master Plumbers' Association of Montreal and Vicinity will speedily take its place in the front rank of the many associations of the kind that are now doing such excellent work throughout the United States and Canada.

IN ACCORDANCE with the recent law in regard to plumbing, the Board of Health of Melrose, Mass., have issued a notice to plumbers, requesting all persons engaged in that business to appear before the Board August 31 or September 1 for the purpose of registering and to obtain certificates.

# Gas and Gas Fitting.—VI.\*

BY J. W. HUGHES.

### Piping the Building.

We will now suppose the gasfitter arrived at the building, ready to set up his bench and begin operations. few minutes friendly chat with the foreman carpenter, who is generally in charge of the building at this stage, is in order to ascertain where to set his bench, as it will only result in loss of temper to find out after time has been spent in getting ready that you have taken space pre empted by some brother mechanic, or where you will be in the way of some operation of which you were ignorant. Avoid passages and doorways, and have an eye to convenience of handling your pipes and other materials with plenty of light and room.

your head-Having established quarters, take your plan and mark off the positions for the different light and other openings with chalk on the walls for brackets, and on floors for centers. The general hight for placing wall brackets on walls is 5 feet 4 inches from the floor. In hall or passages, 6 feet 6 inches, and in fitting the latter due regard must be taken of the hight of ceiling. The light should never be placed nearer than 2 feet clear of ceiling, if of plaster, and if of wood 3 feet at least must be allowed, and even at that distance a suitable shield must be suspended over the burner.

Next cut the different holes, chases in walls, notches in beams, and generally clear the way. Some architects will only allow pipes to be fitted on top of the heams in notches cut for the purpose. Said notches are generally cut close to the walls, or a bearing point of the beams, so as not to weaken the atrength of the building. In cutting notches cut them in line, using your chalk line, or anything handy, to serve as a straight edge, and be careful not to notch deeper than is actually necessary to allow the fitting of the pipe anugly, but not too tight, or so shallow as to allow the flooring to rest on the pipe. Where beams have to be the pipe. Where beams have to be bored use the same precaution to get holes in line, and avoid making them too large. A hole that will allow the buckles on a pipe to slip through anugly is right. Cut chases in brick walls, using a thin bladed sharp cold chisel, and cut from the top down, so as to avoid smashing the brick. The operation is shown in Fig. 16, A being the chase cut and B B the lines on the wall to work to.

Having all holes and chases cut it is next in order to begin the measuringbut I may say, before going into that question, that in many places the gas pipes are run below the beams, in the space formed by the laths when nailed to the furring. This, in my opinion, is the best plan, causing less disturbance and cutting of the structure, and reducing the risk of the pipes being disturbed by subsequent operations. A

sectional view is shown in Fig. 17, A and B being the finished and rough floors respectively, C the beams, D the furring and F lath and plaster, G the gas pipe and H the drop nipple through the center piece. When this plan is adopted great care must be taken to properly secure the drop nipples to avoid having the weight of the gasoliers dragging on the laths. Hundreds of houses in the writer's town are fitted up according to the foregoing method; in fact, it is the universal plan, and there are no practical objections to it, although the question is sometimes raised "How are you going to get at the pipes if they go wrong?" Well, properly fitted pipes don't go wrong, so there is no sense in raising objections of the "if" species.

#### Measuring Pipes.

Before taking measurements the fitter must know what sizes and lengths of pipe are correct and allowed. The gas companies in the different cities have different rules.

As an example of the practice in the United States respecting sizes of pipes, I give the following table from the Regulations of Washington, D. C., which were adopted in February, 1893:

Size of	Greatest length allowed,	Greatest num-
pipę.		ber of burners.
lneh.	Feet.	Der or Darmerer
86	6	1
16	20	0
1/9 3/4	40	02
174	60	35
11/4	80	60
	150	100
2 2	200	200
61/	300	300
21/2	450	450
4	600	750

Smaller pipe than ½ inch shall not be used for ceiling outlets, except for lighting halls, pantries, washrooms, bathrooms and kitchens.

The following is an example of Canadian practice:

Size of pipes.	Length allowed.	Number of openings.
Inch.	Feet.	Obeninks
1.4	б	j.
67	20	3
728	30	G
5.7	40	12
3774	50	20
14	70	35
11.6	100	60
110	150	100
179	200	200
917	300	300
÷73	450	450
2	60)	750
1	0	

There are a number of plans in use among gas fitters for their guidance in taking measurements. Some measure length of pipe only, some pipe and fit-ting, cutside to outside, but the best plan is to measure from center to center, center of one fitting to the center of the next-or center to center of holes. In a complicated building there is an advantage in making a rough pipe plan as the measurements are taken, but in most cases simply putting down the measures with the size and kind of fit-ting is all the fitter needs. If there are a great many measurements it is a guide to number the lengths, not necessarily all of them, but making a figure or mark from time to time to serve as a key or reminder. Some measurements only require to be taken once and simply repeated under the same head, such as

<sup>\*</sup> Copyrighted, 1894, by David Williams.

upright pieces from a running or horizontal main to a bracket. Drop nipples, or wall nipples, also come under this head, but any plan to avoid going over the ground more often than is necessary will serve the same purpose. There is

required for the grate fire in the dining room, also the stove in kitchen, with branches taken off and rising to supply grate fires in front and back parlors on ground floor, Fig. 19, and grate in first floor sitting room, Fig. 20. The meters place with a 4 inch plpe continued up to front parlor, where it is again divided, or branched, a 1-inch pipe being run to supply front parlor fire place, and another of same size continued up to supply first floor sitting room fire place.

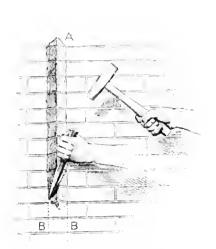


Fig. 16.—Cutting Chase in Brick Wall.

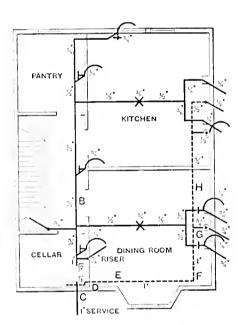
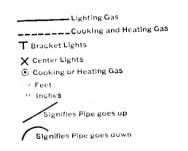


Fig. 18.-Plan of Basement.



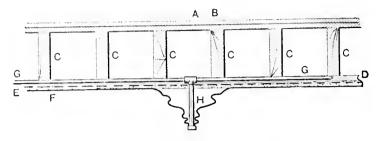


Fig. 17.-Running Pipe Below Floor Beams.

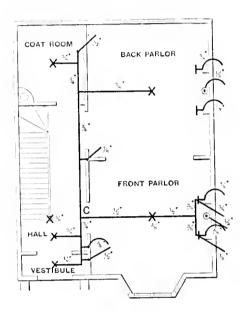


Fig. 19.-Plan of Ground Floor.

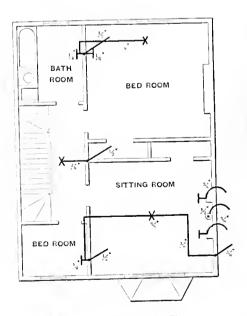


Fig. 20 .- Plan of First Floor.

GAS AND GAS FITTING.

no rule without its exceptions, and this

is where brains come into play.

Figs. 18, 19, 20, 21 and 22 are plans of the different flats of a house with the gas pipes and their sizes marked on. Two sets are shown, one with dotted lines, Fig. 18, which supplies the gas

are shown on basement plan numbered 1 and 2. The line of pipe for heating gas begins at meter No. 1, crosses the dining room and turns toward the kitchen. Opposite the dining room fire place a 4 inch branch is run off, which is divided to supply dining room fire Continuing from the point opposite basement dining room chimney, where its branch was taken off, the pipe is reduced to  $\frac{a}{2}$  inch and run to supply cook stove in kitchen with  $\frac{1}{2}$ -inch branch, and  $\frac{1}{2}$  inch run up to supply the fire place in the back parlor. Where on

the plan branches continue up to a story above, they have been shown by a line run at an angle; when the pipe goes down from any particular story the fact is shown by a curved line, as explained in the legend below, Fig. 18. Pipes shown in solid lines, Fig. 18, are for lighting gas.

The plan is sufficiently clear and self explanatory not to require a detailed description of all its parts. But to give the reader a fair start in studying it a portion of basement will be described. Starting at meter No. 2 with a 1-inch pipe, It is run as far as where the \$\frac{4}{4}\$ inch riser is taken off to supply the upper flats, the fitting used being a 1 x \$\frac{4}{4}\$ x \$\frac{1}{4}\$ inch T; then a short piece is run with

following, the lengths being of course fictitious and not actual measurements, and the fitting shown as they come in the plan:

l inch.	3, inch.	lý inch.
C 1.0 ell and cap. D 2.6 ell. E 10.0 ell. F 4.0 1 x 34 x 34 T.	G 2.6 k <sub>2</sub> x 3 i T. It 10.0 x <sub>4</sub> , \(\frac{1}{2}\) x \(\frac{1}{2}\) T	, 10 ell. -06 cap,
		. i 0 ell.
the first of the first training		2,6 eH.
		30.0 eH.
		. 1.0 cap.

To make the foregoing still clearer a portion of the pipes on the plan have been

#### Cutting the Pipe.

The holes being cut and the positions of openings clearly marked on walls, no mistake can be made, especially if the method be adopted of measuring from center of hole to center of hole every time. The measurements being all taken, hang up the plan close beside the vise where it can be seen without unnecessary trouble, and you are ready to begin getting out the lengths, the helper picking out the fittings as called for. The fittings should be picked from plan and a list of them made out so that they may all be selected in the ahop and brought to the building. A tape line is handy for measuring at the

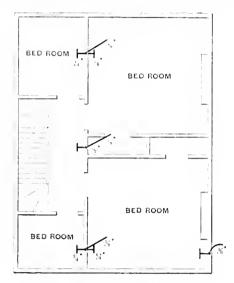


Fig. 21.-Plan of Second Floor.

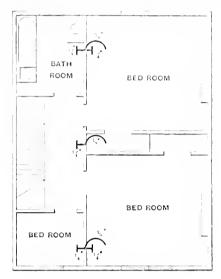


Fig. 22.-Plan of Attic.



Fig. 23.—Fastening Pipe for Side Light.

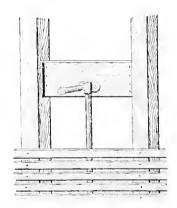


Fig. 24.—Board Between Studding for Holding Nipple.



Fig. 25.—Fastening to Brick Work.

### GAS AND GAS FITTING.

a \(\frac{1}{4}\) x \(\frac{1}{6}\) inch T, from which is taken the pipe for bracket light for cellar, which drops down, as shown by the curved line. Continuing on \(\frac{3}{4}\)-inch, there is a \(\frac{3}{6}\)-inch branch run up to supply the light on newel post of stair on ground floor. Then is taken off \(\frac{1}{3}\)-inch branch which is run across the dining room with a \(\frac{8}{3}\)-inch center drop and continued in branches, as shown, to supply two bracket lights on the chimney breast of dining room, and run up for the same purpose to front parlor chimney. And so on for the different main runs and their branches through the plans.

A set of measurements as taken by the fitter for, say, the heating gas, employing the plan of putting the different sizes of pipe under their proper heading for sizes—that is, not mixing them up—and designating the size of each piece aeperately, would look like the

designated by letters C, D, E, F, G, H. A verbal description of this portion of the set of measurements is as follows: C shows the piece that will drop through the celling at meter, having a cap on one end which will be removed when final meter connections are made and an ell (elbow) on the other end, making the turn in which pipe D will be screwed. D also has an ell on it as well as E. F again changes the direction toward the chimney, and is, say, 4 feet long, having on it a T which changes the size from 1 inch to \( \frac{3}{4} \) inch in size and has on it a T\( \frac{1}{4} \) x\( \frac{3}{4} \) inch for supplying the fire place in dining room, and so on through the whole plan. The letters are used simply to make the method understood by the reader. The resourceful fitter can adopt any plan that is most to his taste, once he has grasped the general idea.

vise, and another handy scheme is to have a strip of wood at the side of the bench and laid off in feet and inches, or the side of the bench itself can be so Cut all the same sizes of pipe marked. first and before taking out of vise, screw on the fitting required, first looking through the pipe to be sure that it is clear and examining the thread to make certain the cutting of pipe or thread has not split the end of pipe. Before screwing on the fitting run around the thread with the red lead brush, the red lend being mixed to the consistency of cream. Do not put red lead inside the fittings if small. For fittings 1 inch or over a little lead put inside the fitting does no harm, but for small pipes it is best to avoid the practice. As the pipes are cut and the fittings screwed on they can he laid aside preparatory to being carried to the different floors where they are to be fitted. In screwing the

different lines up in final position be careful not to injure the pipes with the tongs, and avoid forcing the pipes too far into the fittings. The pipes being all in and capped, before putting on the final fastenings apply the test pump and make sure the job is tight. Then make the final fastenings, taking great care to have the nipples stand out perfectly horizontal and the drop nipples set plumb. Where side nipples are fitted for an ordinary light, single burner bracket pipe hooks, as shown in Fig. 23, for holding the uprights are all that will be required.

On brick walls use wing elbows and screws. For centers use wing tees or elbows, as the case may require. Where the nipple or drop comes between studding or beams, nail in a piece of board to which to secure the outlet, as in Fig. 24. On brick work let in a piece of wood, removing a brick and wedging in a block of wood in its place, as shown by the shading in Fig. 25, being careful to have the piece thoroughly wedged in, so that it will not work loose on drying. Driving large nails tightly between the wood and brick is

a good method of doing this.

Remember that nipples and drops may have to be taken out for cutting, and when the fixtures are being put up see that they are so arranged that this can be easily done and that the pipe to which they are attached will not spring away. A great deal of removing and cutting of nipples can be avoided if care is taken to allow the proper projection of nipple beyond the line of finished plaster or wood work. About 4 inch will suit for most fixtures. In some places bent pipes are insisted upon instead of a fitting and nipple or drop. When this is done the greatest care must be taken to see that the projection beyond the finishing is just right, as there is no acrewing out of the nipple under such circumstances.

Having fastened all pipes apply the pump for the final test. If tight, look your work over carefully and pack up for the next job.

### TRAPS AND VENTS.

Joseph II. Sowden has fitted up an establishment at 518 Main atreet, Vincennes, Ind. Steam and hot water fitting and plumbing are specialties of Mr. Sowden.

Kennedy H. Stiveson & Co., Kittsning, Pa., use the Aeme instantaneo is water heater in connection with a plumbing system to supply hot water at this season, when the cooking for a family is done with gas, gasoline or oil atoves.

THE FIRM of Wyman & Van Orden, at Spring Valley, N. Y., have been dissolved, and Mr. Van Orden will continue the plumbing business at the old stand.

JOHN H. BEAM, Phillipsburg, N. J., finds the sale of the Perfect gas controller a profitable branch of his plumbing business, as his customers report a very substantial saving of gas as well as a better light, when the pressure on the burners is held at the proper point.

The Brownhill Company, 838 Broadway, New York, are finding a foreign market for their Perfect gas controller, which is establishing a reputation as a pressure regulator and gas saver, a large shipment having recently been made to Brazil. They have also established an agency at Brussells, Belgium, and the controller is now being shown at the Antwerp Exposition.

The condition of the closets at the Academy, at Dunkirk, N. Y., were condemned by the health officer and plumbing inspector as improper in their construction and operation. At No. 3 the ventilation of the closets was condemned. The new annex for No. 3, situated on the triangular lot bounded by Lion, Smith and Sixth streets, was condemned on account of the plumbing, and will not be used until repairs are made.

J. S. FULLER, Providence, R. I., finds the Acme instantaneous water heater one of the most popular plumbing fixtures in his city that he has introduced. He recently placed an order for three with the Instantaneous Water lieating Company of New York.

PLUMBER ADDIS, Plainfield, N. J., has associated his son, W. H. Addis, with him, and will open a modern plumbing showroom at an early date.

GEORGE TAYLOR and JOE HILBORN, Bueyrus, Ohio, were in Toledo last week buying stock for their new plumbing establishment.

The plumeing firm of J. J. Couglin & Co. of 407 Main atreet, Albany, N. Y., during their short existence of six months, have already built up an excellent business in gas and steam fitting and all kinds of plumbing.

RANDOLPH & CLOWES, Waterbury, Conn., are sending out some handsomely printed sheets of their new line of lavatory legs. The sheets are 23 in number, printed on fine paper, the pictures being half tone engravings, showing the supports on a black background. Various styles of spiral work and a variety of other handsome designs show straight and offset legs terminating in plain and ornamented feet, claw feet and dolphin heads. Some of the legs have onyx tubes, some are shown with aprons and others without. A plumber should have little difficulty in pleasing an esthetic customer from this line.

The CITY FATHERS of Syracuse, N. Y., with due propriety, referred the contracts for heating, ventilating and plumbing the four new school houses back to the Board of Education, requesting that it first obtain the approval of the Plumbing Board of this city to the specifications of the contract.

IF THE WORK of refilling the streets after making gas or water connections is not properly done, at Toledo, Ohio, the party doing it can be located, and his license will be revoked by the department under which he does the work. That authority is now vested in the several departments, and they have promised to see that it shall be exercised in future, if the Street Commissioner does his duty in reporting the facts.

EATON, COLE & BURNHAM COMPANY, manufacturers of plumbers' and fitters' supplies, have just completed an addition to their works at Bridgeport, Conn. The new building is situated at the corner of Water street and South avenue, and is distant about half a block from the main factory. The addition is 75 x 148 feet, two stories and basement, built of brick, and will be used as a warehouse for finished products. The New York store of this concern has been discontinued, and in future shipments will be made direct from factory. An office, however, is retained at 61 Beekman street, New York City.

O. II. NORTHROP of East Hampton's L. I., N. Y., for the past four years with F. E. Grimshaw of that place, will shortly open a jobbing shop for the carrying on of plumbing and sheet metal work. Mr. Northrop was with the Seth Thomas Clock Company, Thomaston, Conn., for four years previous to coming to East Hampton.

THE WALTHAM, MASS., BOARD OF HEALTH held a meeting last Monday and 28 plumbers were registered according to the provisions of the recent law, which makes registration necessary. A number of house owners were notified to connect their places with the sewer at once, as complaints had been made to the board.

A convenient rule for tinners, plumbers, steam fitters and all mechanics who work from plans is made by the Stanley Rule & Level Company, 29 Chambers street, New York. It is the usual 2-foot rule with the inner edge of all four of the 6-inch sections beveled, and on this space are scales of  $\frac{1}{5}$ ,  $\frac{1}{5}$ , and  $\frac{1}{3}$  inch to the foot, with smaller divisions at one end of the scale. They also make a pocket level that could be used with advantage to determine the fall of gutter, the pitch of a soil pipe and to avoid air traps in pipe fitting. A considerable job of engineering can be done with a rule and a good level.

J. C. HARTFORD & Co., 57 Dearborn street, Chicago, have issued a catalogue and price-list of the Hartford Vent sewer gas trap. This is a form of trap in which the full size of the passage is preserved as in the common S-trap, so that it is self-scouring, but in addition the trap is enlarged at its discharge end sufficiently to admit a vent pipe which extends downward behind and below the seal and is suspended directly over the discharge pipe. There is thus no accumulation of grease or aediment, while siphoning is prevented and the sewerage system is ventilated. Various forms of this style of trap are shown in the catalogue, such as aink, lavatory, urinal, &c. The lavatory traps shown are of various designs, comprising brass traps with removable vents, full brass traps with wall and floor plates, traps with vent to wall and slip joints, traps with waste to wall, traps with off sets, &c. An interesting illustrated treatise on sewer gas traps is inserted in the catalogue, in which a comparison is made of different methods of maintaining

A CALL is about to be issued for a meeting of the plumbers of Union County, N. J., for the turpose of forming a master plumbers' association. The meeting will be held at Elizabeth some evening, not yet set, next week. The plumbers of Plainfield, Westfield, Roselle, Summit, Cranford and Elizabeth have signified their interest in the association, and it is expected that National President John Mitchell of New York will address the meeting. State Vice-President John Hickman of Paterson and Alexander Don of Newark will also be present.

THE MASTER PLUMBERS OF ALBANY, N. Y., held their annual clam bake last week, which was in every acrase a highly eujoyable affair. Their wives, children and frienda were in attendance.

A PLUMBER has been fined at Brockton, Mass., for failing to comply with the plumbing laws. He refused to file plans of his work and to test it according to law.

THE INSPECTOR OF PLUMBING at Salem, Mass., says a local paper, is kept

busy just now, and while the new ordinance makes the cost of plumbing more than formerly, the result is better than without any ordinance. It has been suggested that the ordinance be repealed. This cannot be done, as the law requires that some rules and regulations shall be adopted. There may be a modification of it. One good result is that inferior plumbing in a cheap class of houses cannot be done. The law is the same for all dwellings, and it is more beneficial to the health of the occupants of the houses.

The Lyman & Kellogg Company have been incorporated at llolyoke, Mass., under the State laws, with a paid in capital of \$25,000. The members of the company are Charles P. Lyman, J. E. Kellogg and W. C. Livermore, and the firms of C. P. Lyman and Kellogg & Co. have been united in the new company. The place of business will be 139 and 141 Msin street, and a general furniture and plumbing business will be done. Mr. Lyman will have charge of the plumbing department and mill work and Mr. Kellogg will mauage the furniture department. The officers will be: President, C. P. Lyman, treasurer, W. C. Livermore; directors, C. P. Lyman, W. C. Livermore and J. E. S. Kellogg.

Chas. H. Morrow, secretary of the Board of Civil Service Examiners of Gloucester, Mass., issues a notice that the board will soon convene to select a plumbing inspector.

A notable shipment of shafting and pulleys was recently made by the Rice Machinery Company, 166 to 174 South Clinton street, Chicago. It was consigned to the Northwestern Coal Railway Company, Superior, Wis., for use on their coal dock. The items of the shipment are as follows: One piece of 5½ inch shafting, 7 feet long; one 5½-inch, 17 feet long; six 4½ inch, 24 feet long; eleven 4½-inch, 24 feet; six 4½-inch, 24 feet; four 4-inch, 24 feet; four  $3\frac{a}{4}$ -inch, 24 'eet; four  $3\frac{1}{4}$ -inch. 24 feet; four  $3\frac{1}{4}$  inch, 24 feet; four 3 inch, 24 feet; 47 pairs of flange couplings; 40 friction spools, 22 x 15, and 40 friction spools, 15 x 12. All are to be coupled in one continuous line 1250 feet long, driven at one end by a 500 horse-power rope drive. The equipment comprises two 500 horse power engines, so that one can be held in reserve or both be used if occasion requires. The shipment required four cars and comprised a total of 175,000 pounds. One gondola car was loaded with 47,110 pounds.

Excavation has been begun for the power house of the Metropolitan West Side Elevated on its line between Throop and Loomis streets, The building will be 600 feet long, 90 feet wide, and have an average hight of 70 feet. Only one half of thia, how-ever, will be put up at the present time, the other being added as the extension of the company lines demands an increase of power. It will be of steel construction, with red brick walls and slate roof, and will be fire proof. The plans are to make it the model power station of the country. The cost will be \$300,000, and it will be com-The cost pleted December 1. The engine room, which will be 300 feet long, will afford apace for eight engines, each capable of producing 2000 horse power in electrical current. The battery of boilers will be in a separate house and will consist of 36 boilers of 300 horse-power each.

### New Publications.

PROGRESS IN FLYING MACHINES. By O. Channte. Size 6 x 9, 308 pages. Illustrated. Published by the American Engineer and Railroad Journal, New York. Price, \$2,50.

It is seldom that a book dealing with a scientific subject appears at a more opportune time. Aeronautics is attracting wide attention in all civilized countries; earnest effort is being made to formulate the principles that must underlie successful flight; study of the attempts that have been made is being prosecuted carefully, and, most important of all, experiments are in progress which lead to the belief that the flying machine is a possibility, perhaps of the near future. Mr. Chanute's book, therefore, is a most welcome contribution to the subject, since it gives a complete historical review of the efforts of inventors to accomplish tlight with apparatus. It needs but a glance at the work to appreciate the fact that the author has searched the field thoroughly and collected data of the greatest value He has gathered all the records of such experiments which were accessible, and has endeavored to show the reason for their failure and to explain the principles governing flight. His study has led him to believe that we may eventu ally fly through the air.

The book is divided into three general heads: Wings and Parachutes, Screws to Lift and Propel, and Aëroplanes. The legends of antiquity are very properly discarded, as they have no value, but merely indicate that artificial flight early appealed to the imagination of man. Under each head the experimenta are arranged chronologically and drawings showing the peculiarities of construction of different types of machines are reproduced whenever possible. It is under the title "Aëroplanes" that we find the most interesting particulars, since it is in this direction that the most promising work is now tending. The author's opinions and criticisms are presented while describing the experiments, this being, in his opinion, a better plan than to offer them in a series of abstract statements and propositions.

The following table, based "upon experimental data of projections.

Comparative Efficiency of Various

appropriated to the motor:"

perimental data of weights actually sustained, indicates that aeroplanes are

probably the best form to experiment

with, because they admit of a larger

proportion of the whole weight being

Kind of apparatus.	l'ounds sustained per horse- power.	Prop'rtion available for motor.	Resulting possible weight of motor per horse- power Pounds,
Screws	45	1/3	15
Wings	100	1/4	25
Aëroplanes	100	1/2	50

"This also indicates the possibility of success in artificial flight, with motors weighing 10 or 15 pounds per horse-power, provided that the remaining problems be also solved; but it must not be overlooked that more power will be required in rising from the ground than in horizonal flight, and that the actual proportion of the total weight available for the motor, although conservatively estimated from the best data available, is still a matter to be proved by experiment."

In an appendix the experiments made by Herr Lilienthal in 1893 are described fully. The book closes with that most essential adjunct—a very copious index.

Award for Sheet Metal Tools.

The Niagara Stamping & Tool Company, Buffalo, N. Y, have received an award for their exhibit of tinners' machines and tools, thears and presses at the Columbian Exposition, the text of which is as follows:

Distinguished for convenience in operating, accuracy and careful workmanship, pleasing appearance and excellent finish. The machines have large capacity and are well adapted to the purposes for which they are designed and constructed. The machine for edging sheets of metal shows improvement in the gauge mechanism, which provides for quick and precise gauging of edges of different widths, and in the adjustment of the wing or folding bar for round edges. The gauge is affixed to a slide moving in the extension, and is operated by a link from the adjusting screw on the side, the width of the lock being indicated on a dial. For forming round locks for wiring purposes the folding bar is lowered. The bench machines show improvement in construction. Their parts are made on the interchangeable plan; the cases are milled and the gears are machine cut.

The machine for tacking down seams on round or other shaped pipes, or on bodies of tinware, shows improvement. The Niagara machine has a round horn which permits of grooving pipea as small as 2 inches in dismeter. The horn has grooves into which the seam can be pressed by means of a flat roll, thus putting the seam at the inside of the work; while the machine is also adapted for outside grooving when grooved rolls are used bearing on the flat surface of the The Queen City machine is convenient in operation. As the rolls travel over the work a flat roll follows a grooved roll and tightens down the seams. Both these machines have devices for quickly adjusting them to various thicknesses of metal. The tools used in canning factories, such as soldering cylinders, cappir g steels, solder cutters and molds. soldering coppers and fire pots for various kinds of fuel, are well designed and finished and admirably adapted to their purposes. The foot and power squaring shears are of graceful and simple designs, with ample weight and strength to do the required work without strain. These shears are adequately supplied with provisions to take up wear in guides and knives. The knives are ground perfectly true, so as to fit the cross head and bed without lining. The power presses for stamping sheet metal have effective clutch mechanism with positive stop.

The Treasury statement of exports for the first seven months of this year shows a marked decrease in the export movement of wheat, rye, oats, petroleum residuum, naphtha, taltow and canned beef, as compared with last year. Other breadstuffs, provisions and oils exhibit a considerable increase over the same period of last year.

The dire predictions of the Eastern peach growers, made in the spring, appear to have been verified this year. The peach crop is pronounced to be an utter failure.

## STEAM AND HOT WATER.

### How Shall Radiators Be Vented?

From M. M., Pennsylvania.—In reply to A. P. of Pennsylvania, in The Metal Worker August 4, would say: The ordinary valve on a direct radiator is always more or less trouble, especially on hot water work. It cannot be opened without letting some water on the floor, and is liable to be accidentally opened by rubbing or leaning sg4iu3t it without being noticed, and I have seen them broken off by pushing the furniture against them, &c. The fact that they require attention is enough to condemn them. The vent pipe over the expansion tank is much the best way; it is always at work and requires no attention at all, and if the work is properly planed does not cost any more to put in. Entering the flow pipe in the top of the radiators and venting the system of piping is a much better way and can most always be done at very little additional cost. It may also be the means of preventing the blowing of the water out of the expansion tank, should the apparatus be allowed to get too hot. If the system of piping is ventilated it does away with the third connection at the radiator.

### Hot Water Heating from Steam Boiler.

From C. E. K., New Orleans.—I would like to know upon what theory the radiator shown by W. H. Page in The Metal Worker of July 7 derives its circulation.

According to that sketch the hot water from the boiler flows downward to the radiator, and the cold water from the radiator rises directly to the boiler—a circulation rather contrary to that obtained usually. Of course the steam pressure being practically equal upon both feed and radiator, no forced circulation can be obtained from that.

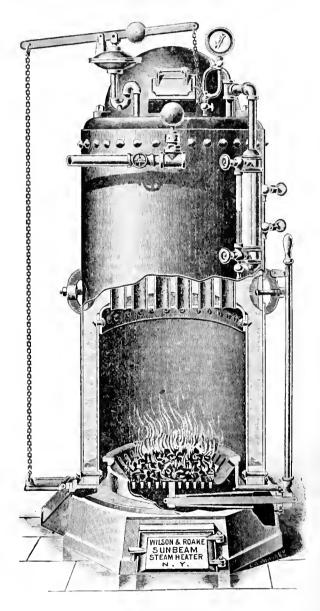
### The Sunbeam Boiler.

In the accompanying picture a sectional view is shown of the Sunbeam house heating boiler recently patented and being manufactured by Wilson & Roake, 261-263 Front street, New York. The boilers are made of flange steel having a tensile strength of 60,000 pounds, and each one is tested by a cold water pressure of 150 pounds. As will be seen by the cut, it consists of an outer shell and an inner shell, the lower part forming the fire chamber and in the front of which is the feed door. The top of the Inner shell is covered with a water tight plate, from which tubes run to a similar plate connected with the outer shell, the space between being filled with water. The radiant heat of the fire strikes against the inner shell and the plate at the top, and the hot gases pass up through the tubes to the chamber above, from which they find exit through the smoke collar. The boiler rests on a substantial base, which forms an ash pit and supports a grate that is easily operated by a lever

and which can be readlly removed or replaced. To the boiler is attached the usual water gauge, safety valve and steam gauge when used for steam, and an automatic draft regulator is supplied that is employed when the boiler is used for either hot water heating or for steam. An asbestos lined galvanized cover is furnished when desired. The boiler is made in six sizes with grates

catalogue of the boiler has just been printed which gives full details and description and can be had on application.

A MATHEMATICIAN of Massachusetts, who, according to a local paper, feels that the dietates of scientists are becoming rather expensive in these latter days, has been doing a little figuring on



The Sunbeam Boiler.

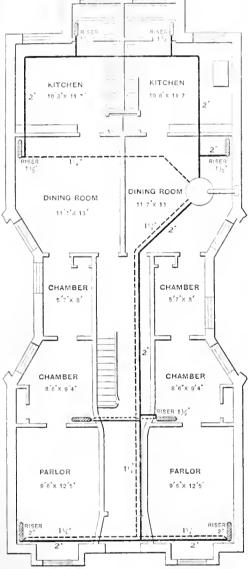
having respectively  $1\frac{1}{6}$ , 2,  $2\frac{1}{2}$ ,  $3\frac{1}{4}$  and  $4\frac{\pi}{4}$  equare feet and rated to carry 233, 400, 600, 800, 1000 and 1200 square feet of surface in direct radiation. The respective horse-power of the boilers is given as  $2\frac{1}{3}$ , 4, 6, 8, 10 and 12, and their strength of construction permits of their being use 1 for power purposes when not in use for heating. One of the boilers is in use where it pumps the water supply for the building, a system of valves and piping shutting off the heating system while the high pressure work is being done. A new

the subject, and he says that to introduce into school rooms the amount of sir per minute that some plans call for, and to bring it in through the prescribed conductors, would create a current against which no man could stand, and that the result would be to blow teachers and pupils into the corners of the rooms and hold them there until the ventilation was shut off. Again, he finds that according to scientific requirements it would be impossible for a person to live in his dining room long enough to finish a meal, and as neither

he nor any of his family nor guesta has ever been suffocated, he is naturally led to question whether this "cubic feet of air" business is not sometimes carried to an extreme, especially where the public has to foot the bills.

### Heating a Tenement.

To those of our readers who are distant from the larger cities the method of heating a tenement house will be interesting. As a rule in such houses there is a janitor who attends the heat-



Heating a Tenement.

ing plant and does many other things that are usually done by the family or servants. The illustration shows the plan of some houses built by F. Guggenheimer in New York, and in which Albert Cryer & Co., 85 Centre street, New York, installed the heating plant, using a Victor steam boiler. Only the first floor plan is given, as each of the two floors above is exactly the same, except that the parlors are a little wider, as there is no entrance hall. From this it will be seen that the homes of six different familles are heated from one steam plant, and the labor and care of the fire avoided. The boiler is at the rear of the building and connects with the chimney, as shown. A 2-inch steam main runs from the top of the hoiler to the front of the building with 11 inch branches to risers at each side, which feed the radiators in the chambers on

At the front the main each floor. branches and runs to a 2-inch riser, which feeds the parlors on each tloor. From the bottom of these risers a 1+ inch drip is taken to a point where they meet and run under the steam main back to the boiler, receiving a 1 inch drip from the chamber riser. A 2-inch main runs toward the back of the house, a 2 inch branch being taken to a 1½-iuch riser, which feeds the radiators in the three dining rooms above. The 2 inch main continues on turning across the house to the opposite side when it again turns and runs toward the front as far as the dining room riser. Two 11 inch branches are taken from the main to feed risers that run to the radiators in the bath rooms. The dining room riser at the end of this main is 1½ inch and supplies three radiators. From the bottom of the diving room riser a 1‡ From the inch drip runs directly across to the boiler and connects at the bottom. The mains are run with a fall to carry the condensation quickly to the drips and main returns. Automatic air valves are used on the job.

### HEATING NOTES.

THE ARCHAMBO, MARTIN & MORSE COMPANY, Minneapolis, Minn., recently filed articles of incorporation, changing the name to the Archambo & Morse, Company. In our issue of August 11 we referred to the change, but made a mistake in the new name of the firm.

T. C. Joy & Co., Tituaville, Pa., are distributing to the trade circulars relating to the Orient radiator for steam and hot water. The firm are now prepared to furnish this radiator in the following hights: 45, 39, 31 and 24 inches. The circular gives an illustration of the Orient, and on the back of the page is a full list of different sizes in which it is made, together with heating surface and other particulars.

L. W. GOULD, Vineland, N. J., has made a success of combination heating with hot water and hot air, having had 19 plants in operation last winter, in which the Boston heaters of the Magee Furnace Company were used.

SMITH & WINCHESTER COMPANY, Boston, Mass., are pushing their already well-known Winchester boiler for steam and hot water heating with characteristic enterprise. A catalogue just issued is a very neat piece of typographical work. It is a small pamphlet, bound work. It is a small pamphlet, bound in tinted covers, the front carrying a particularly handsome raised design.

The printing within the pamphlet is done in red and dark green ink, making very attractive text. Illustrations show exterior views of the boiler, while semitransparent illustrations indicate clearly its interior arrangement and construc tion. The boiler is also shown in brick setting and the grate is likewise sep arately illustrated. Toward the end of the pamphlet two tables give all dimensions, capacities and prices of both the steam and hot water boilers. They are both made in seven sizes. A telegraphic code follows, and at the end is a reference to several styles of radiators. Accompanying the catalogue is an amusing advertising device, on the back of which is the legend: "To produce a correct likeness of how a man who puts in a furnace instead of a hot water heating apparatus looks to the fitter, place opening to the lips and blow hard." Following these instructions the thin paper device expands and shows a likeness of a patient jackass, or, we might say, a speaking likeness, since the

mouthpiece brays in imitation of the veritable quadruped.

THE AMERICAN BOILER COMPANY. from their office, 84 Lake street, Chicago, are sending out circular letters to the trade under recent date. One of them directs attention to a revised price list which went into effect August , and gives the discount from the list. One of the lists relates to bot water heaters, and the boilers priced are the Perfect, Spence, Tropic (self feeding and surface burning), Bolton, Advance and Little Giant. As showing the wide range covered by the boilers of this large concern it may be stated that the capacities vary from 75 to 7500 feet. A second price-list relates to steam boilers, and includes the following apparatus: Florida, both self feeding and surface burning; the Soleil, the Ameriean and the Modern. Another circular letter which the same firm are distributing to the trade calls attention to the extensive assortment of steam and hot water heaters which they manufacture, and refers to the advisability of purchasing boilers from well established firms who thoroughly understand the business and can give their customers the treatment which they deserve.

THE STOVER HEATER COMPANY of Freeport, Ill., have issued a fine catalogue of their Cuba vertical tube boilers for steam or hot water heating. The Cuba is a self feeding self regulating boiler, built in vertical sections of cast iron tubes. The sections are bolted together through the water ways, thus providing for an equal expansion and contraction between sections and the rods connecting them. The sections are all planed so that they meet accurately and the joints are made tight by a packing which becomes hard and is stated to be as durable as the iron itself. The catalogue comprises 40 pages of interesting matter concerning the merits and advantages of ateam and hot water heating, together with tables of dimensions of boilers made and full particulars as to prices, &c. The illustrations given show all the essential points regarding the internal construction of the Cuba. The company have established a Chicago office at 89 Lake street, in charge of John Tubman.

Notwithstanding the general complaint of dullness, F. Richter & Son of Milwaukee, Wis., report their trade improving in steam and hot water heating. They have just closed up three good ateam contracts, and in the first three days of last week sold five of their large sized sectional boilers. They also made a contract for heating Dr. Godfrey's residence now being erected at Lancaster, Wis.

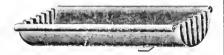
The corn crop throughout the South is fairly good, though short in some sections, owing to the lack of rain and excessive heat.

The condition of land tenure in the United Kingdom is curiously illustrated in the Financial Reform Almanac. Says that authority: "Of the 72,000,000 acres in this country, 50,000,000 are owned by less than 15,000 persons, and of these 50,000,000 on less than 30,000,000 acres are owned by 1000 persons. It is estimated that, leaving out blocks of under an acre in extent, 180,524 persons practically own the whole of England, Scotland, Ireland and Walcs: that 10,000 persons own two-thirds of England and Walcs, 300 two-thirds of Scotland and 1900 two-thirds of Ireland."

# THE RETAIL STORE.

### The Crusty Bread Pan.

The accompanying illustration shows the Crusty round bottom bread pan, put on the market by the Niles Mfg. Company. Niles, Ohio. The special advantage claimed for this pan is that it produces crust over the entire surface, on the bottom as well as the top. The bread is said to bake evenly, and the



The Crusty Bread Pan.

loaf being of a moderate size, it is more apt to be fresh until used up instead of dried out, as in the case of a larger loaf. The pan is also adapted for use in baking spiced meat loaves. The manufacturers point out that the bead on each edge keeps the loavea a suitable distance apart in the oven, preventing them from running together, and by inserting a poker point slightly flattened into it the pan is readily taken from the oven.

### An AdvertIsing Suggestion.

Above the office of the General Repairing & Construction Company, 398 Gates avenue, Brookiyn, N. Y., appeara the following alliterative and comprehensive announcement in letters of imposing size:



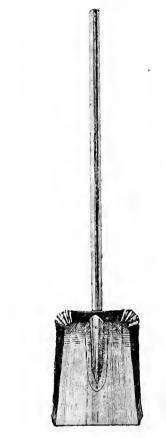
Elsewhere, on the front, is set forth the fact that the company are prepared to do sil kinds of carpentering and mason work, and to undertake the decorating, repairing and remodeling of buildings.

### Tool Holder No. 6.

Millers Falls Company, 93 Reade street, New York, are introducing a tool holder, as here shown. It is made of cocobois wood, with the metal or chuck Among the obvious advantages of the holder is the case with which a desired tool may be selected, the quick detection of the absence of a mislaid tool from its cell and the case with which tools may be changed in the chuck.

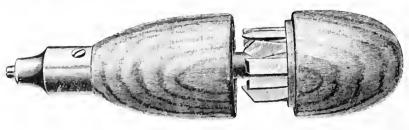
### Peninsular Furnace Shovel.

The accompanying cut represents a furnace shovel offered by the l'eninsular Metal Works, Detroit, Mich. The



Peninsular Furnace Shovel.

shovel is described as being made of the best quality steel, with double edge, and as having four thicknesses of material at the lower corners. The makers remark that the shovel is designed to supply the demand among furnace men



Tool Holder No. 6.

end nickel plated. The handle is arranged with a separate cell for each tool, of which there are 12, of the same quality, it is explained, as those put up with their Nos. 1, 4 and 5 handles.

for a long handled, light, stiff and shapely shovel for use around furnaces, and that this shovel is of proper shape both for handling coal and for taking up ashes, while it can be used for any

purpose for which any other, shovel is commonly used. The manufacturers claim that the price is from 25 to 50 per cent. less than for anything of a similar nature, and that in shape the shovel is different from anything on the market. The shovels are made in four sizes, from  $7\frac{1}{2} \times 15$  inches to  $10\frac{1}{2} \times 15$  inches.

### The Safety Stove Pipe Collar and Holder.

J. K. Randles, Quincy, Ill., for whom L. D. Sanborn, Grand Rapids, Mich., is sole agent for Michigan, is offering the stove pipe collar and holder here shown. The collar is designed to grip any kind of pipe, and ita adjustable claw hooks, which catch inside the flue at the outer ends, slso enter inside the pipe at its inner end, giving a long reach in the flue hole. The claw hooks being adjustable are readily adapted to the different thicknesses of walls,



The Safety Stove Pipe Collar and Holder..

and are held in place by thumb nuts. After the collar is firmly fastened in place the pipe is inserted through the collar and into the flue hole, when, with a screw driver, the screw in the collar is tightened, clamping it around the pipe. It is claimed that neither the pipe nor collar can possibly get loose or come out, until they are taken out, thus saving the carpets and wall paper from damage by soot and smoke, and obviating the necessity of wiring the pipe; and that no tools except a screw driver are required when putting it in place. The point is made that it does not mar or disfigure the wall and only upon close inspection can it be distinguished from an ordinary collar.

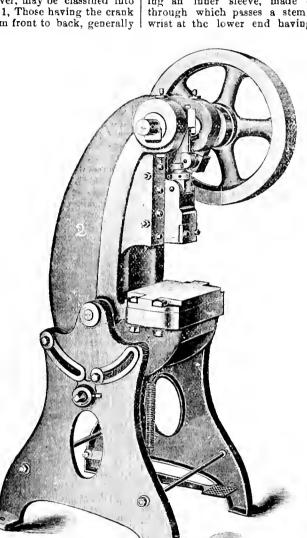
The Southwark Scale Company, Philade phia, Pa., are putting on the market a 60 gallon oil tank, which they state weighs 10 pounds more than the heaviest tank at present on the market.

Considerable uncertainty having been felt by importers in regard to the standing of goods now in bond under the new tariff law, Custom House authorities have given as their opinion that dutiable goods withdrawn after the new law becomes operative will pay the new rates, but goods made free by the new iaw will have to pay the duties existing at the time of their importation.

### No. 2 Adjustable Power Press.

The development and general introduction of the power press began with the invention of an efficient automatic clutch, a device which made it possible to engage a loosely running fly wheel by means of a treadle, with a crank shaft for one revolution only, and stopping the press automatically at the highest point of the stroke. A large variety of designs have since appeared, which, however, may be classified into two kinds: 1, Those having the crank shaft run from front to back, generally

producing a frame of pleasing outlines free from detrimental curves and kinks. The shaft is made of forged steel, journaled in removable liners, provided below with an adjustable shoe. This feature, which is referred to as entirely new on presses, supplies means for taking up the wear and for truing up the shaft by turning down in case of cutting or excessive wear. Only a new set of liners are required in the latter case. The connection consists of an exterior part of large diameter embracing and clamping an inner sleeve, made of steel, through which passes a stem with a wrist at the lower end baving a wide



No. 2 Adjustable Power Press.

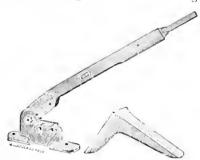
known as punches or punching presses;
2, those having the crank shaft running parallel with the front of the operator, known generally under the name of open back presses. Later on another feature was added to this class of presses by some builders—an arrangement to incline them. Since then these presses have frequently been termed "adjustable" or "inclinable" presses. This addition makes these presses preferable for die work, in which the work does not fall through the dies but is ejected from them. The press being inclined, it will slide down merely by force of gravity through the open back. The illustration herewith represents a line of presses of the latter kind, manufactured by Rudolphi & Krummel, Chicago, Ill. The frames or bodies of these presses are designed on the straight line principle, the points of pressure being connected by metal, arranged in atraight lines as much as possible, thereby gaining strength and

bearing in the slide. For adjusting, only small light wrenches are required. The slide is guided in acraped, adjustable V gibs of extra length. The clutch is the so-called Johnson clutch modified. It consists of a solid piece of round tool steel, flatteued and hardened on the end. The clutch can be taken apart instantly by sliding out the wheel on the shaft. Two or three locking points are provided in the wheel. A knock out, not shown in the cut, is provided on these presses for combination dies. It is carried in the slide and is adjustable from the front of the press. The adjusting of the press from upright to incline is done on smaller sizes by means of a geared segment and pinion; on larger ones the pinion is replaced by a worm. A few turns of a crank will accomplish it. The illustration shows the No. 2 press. The manufacturers wish to call attention also to the unusually large die space, both as to hight

and depth, which these presses have. Four sizes are being built at present, the smallest one being a bench press.

#### Some New Tools.

We show in the accompanying Illustrations some tools put on the market by R. M. Clough, Tolland, Conn. Fig.



Some New Tools.—Fig. 1,—Hand Lever Shear,

1 is a hand lover shear intended for a stock shear and rod cutter, to be used in carriage and light blacksmith shops. It will cut off 4-inch stock easily and 4-inch round iron. The shear can be fastened either to the bench or post by the use of the bracket, and takes but very little room.

Fig. 2 is a foot power shear with a capacity to shear up to  $\frac{1}{3}$ -inch stock, and has a 4 inch blade which will cut a width of 6 inches. The press works



Fig. 2.-Foot Power Shear.

by foot power, thus giving the operator the use of both hands in guiding the work. It is provided with two gauges, one for stripping and one for angular cuts. The table is marked with degrees as indicated in the illustration, and the tool, as shown, is fastened to the bench.

Fig. 3 is the No. 2 punch, having a capacity for punching ½-inch holes in ½-inch iron. It is adapted to be operated either by foot or hand lever and likewise can be made to run by power if desired. It is provided with two

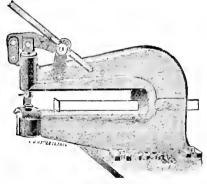


Fig. 3 .- No. 2 Punch.

gauges, one to gauge the hole from the edge and one to gauge the distance of the holes apart. The holes can be punched 18 inches from the edge, or at the center of a 36-inch sheet, and from 1 to 12 inches apart.

# TIN PLATES.

### The Welsh Tin Plate Situation.

Considerable friction still appears to exist between the Welsh Tin Plate Workers Union and the employers in regard to the observance of the 36 box The union officials continue to insist on the maintenance of the rule, and in several instances the workmen have adhered to their mandate and gone on strike aconer than increase their output beyond this limit. has been the case at the Glynbendy Tin Plate Works, near Brynamman, which have recently been closed down. According to the Iron and Steel Trades Journal the manager of these works declared that owing to the restriction of ouput they were lesing 9 cents on every box of finished plates, and as they could make black plates without loss they naturally preferred to take orders for that article than for the finished plate. The men took the slarm, and gave notice to cesse their employment unless more regular employment was found for the tinmen. The manager frankly told the men that if they would increase the output per day, and so lessen the cost of production, he would book more orders for tin platea. This, however, they were not willing to do, hence the works have been closed. Similar action on the part of the men employed at the Avon Vale Tin Plate Works, in the Abersavon district, has resulted in the closing of those works and the throwing out of employment of 300 men. At some works, on the other hand, the men have appreciated more clearly where their true interest under the existing conditions lies, and have made concessions to their employers. In the Phillips works, at Abertillery, Nantyglo and Pontymister, for example, they have conceded 15 sheets to a box, with the consequence that those works are all kept in active operation. So low are prices for tin plates on the other side, however, that manufacturers are taking steps to reduce the cost of production in every possible way, being apparently convinced that low prices have come to stay, and that they can never hope to revert to those of two years ago.

### SCRAP.

BRITISH EXPORTS of tin and terne plates to all countries for the month of July, 1894, were 25,910 tons, as compared with 33 601 tons in July 1893. Exports to the United States were 17,805 tons, as compared with 17,247 tons in the previous month and 22,248 tons in July, 1893. So far this year the shortage in shipments as compared with the first seven months of last year is about 63,000 tons.

DREIFUS, BLACK & Co., iron and steel brokers of Pittsburgh, Pa., have, says the Dispatch of that city, secured 10 acres of land at New Kensington, Pa., for a site for a black plate and tin plate mill. The equipment will, it is reported, consist of four hot and four cold rolls and a tinning set of ten stacks. About \$250,000 will be in-

vested and work will be commenced at ouce on the construction of the mill. Employment will be furnished to 300 men.

A SAMPLE of Pennsyl Old Method recoing plate sent out by Gummey, Spering & Co., Philadelphia, is one of the best advertising cards that can be issued. The sample is 5 inches square and earries the stamp with which these plates are marked. It is large enough to be thoroughly inspected and the heavy coating of the plate can be tested readily. The plate evidently has considerable tin in the coating and the mottles give the appearance characteristic of heavily coated plates.

A REPORT of the New York Custom House, recently issued, shows that 14,766,116 pounds of tin and terne plates were held in bond in the warehouses of this city on July 31 in anticipation of lower rates of duty by the new tariff act, a considerable increase over the figures for June 30, and largely over the normal volume. It is probable that no large withdrawala will be made until after October 1, when the new duty rate will, by the provisions of the bill, come into effect.

A DISPATCH from Pittaburgh, Pa., to the Philadelphia Public Ledger takes a very hopeful view of the future of the tin plate manufacturing industry under the new tariff law. The settlement of the tariff, it says, has given an impetus to the development of the black plate and tin plate industry. Plans that had been maturing for months are now being put in effect. There is considerable esgerness displayed to invest money in this direction. The fact that the protection accorded black plates has been reduced 30 per cent, and tin plates 46 per cent, does not appear to deter investors from embarking capital in additional plants. B. Goldsmith, a tin plate importer of New York and Portland, Ore., is here looking up sites. He proposes to put up a \$200,000 plaut, with a capacity of 20 tons a day, or 2400 boxes of finished plates per week. Norton Bros., the tin plate manufacturers of Chicago, are said to be interested in the negotiations for the purchase of Oliver's Fifteenth street plant. Jsmes Hemphill of McIntosh, Hemp. hill & Co. says his firm are figuring on a plant. He thinks it will be necessary to see what the future labor coat will be before they go ahead. Capt. W. P. Tyler, the tube manufacturer, told of a project to build a \$200,000 black and tip plate works in this section. The tin plate works in this section. The Garrison Foundry & Machine Company have also had good queries recently from people who are figuring on erecting plants or adding black plate mills to their present works.

An Air of Alertness and expectancy, which has been conspicuously absent for many months, is noticeable this week among the New York in plate and metal houses. This is accounted for by the fact of a gratifying addition to the size of their mail in the shape of inquiries from would be purchasers, which inquiries, it is fondly hoped, will in many cases develop into orders

after Monday next. By that time the fateful quea ion whether the new tariff bill is "to be or not to be" will be finally aettled. A few weeks ago the mail of one of the leading houses in the trade consisted one morning on which it was visited of three letters—two containing inquiries and the third a remittance. A dczen clerks and atenographers were busily engaged in wrestling with the day's mail of the same establishment when it was visited in the latter part of this week. And yet it was said that but little actual business was being done. They were answering inquiries. This is a fair illustration of the condition of the tin plate trade in general at the present moment—a preparation for business "next week."

Some of the tin plate dipping works have closed down this week in anticipation of the passage into law of the new tariff bill, which will virtually demolish their business. On the other hand, runnors are plentiful as blackberries of the projected construction of new black plate mills and tin plate plants. A party of New York business men who are known to be interested in the establishment of a large tin plate works in the Pennsylvania gas region left this week for a few days' trip in the direction of Pittsburgh—a holiday jaunt, which, it is surmised, will result in definite steps being taken for the immediate prosecution of work in the new undertaking.

THE PURCHASE a few days ago in the New York market by a large Western concern, who have recently added a tinning plant to their rolling mill, of between 40 and 50 tons of pig tin is an evidence that they, at least, regard with equanimity the impending tariff changes, and are satisfied that, whether the bill is passed or vetoed, they will be able to make American tin plates on a large scale.

The fleet Cunarder, "Campania," in her last week's westward trip established her right to the title of Queen of the Atlantic. She accomplished the voyage from Queenstown to Sandy Hook in 5 days, 9 hours and 27 minutes, beating the previous westward record—that of the "Lucania"—by over three hours, and landing her passengers, for the first time, on the Friday evening. The average apeed made was 21.49 knota per hour for the whole trip. The list of runs was as follows: August 12, 516 knots; August 13, 528 knots; August 14, 543 knots; August 15, 525 knots; August 16, 545 knots; August 17, 126 knots. The "Campania" now holds both the westward and eastward transatlantic records.

Enormous withdrawals of whisky from bond are taking place, distiliers being anxious to escape the additional tax provided by the new tariff bill. The Treasury officials estimate the amount of the spirit that will be withdrawn from bond under the present tax of 90 cents a gallon at 6,000,000 gallons. Internal revenue receipts exhibit a material increase accordingly.

### HEATING po PLUMBING.

### NEW WORK AND CONTRACTS.

J. L. & F. II. Congdon of East Greenwich, R 1., are the contractors to put steam heaters in the new house building for N. B. Lewis at West Kingston.

A NEW REATING PLANT is to be placed in the Rescue Home for Fallen Women, at Philadelphia.

THE SCHOOL COMMITTEE OF SCRAN-TON, PA., are asking bids for a heating plant for the high school building.

GEORGE B. WARD has been given the contract for plumbing the 21 houses to be built for Newton Cloud on Stroud and Franklin streets, Wilmington, Del. He has also the contract for plumbing the six new houses for W. L. Wilson, at Eighteenth and Washington streets.

THE MERCY HOSPITAL, at Hamilton, Ohio, is to have a new steam heating plant.

THE DAVIS COMPANY and M. SCHIL-LINGER are putting in a steam heating plant which will furnish warmth for the entire Auditorium Building, at Moline, Ill., this winter.

E. H. UNDERDILL of Boston, of the Underhill Heating & Ventilating Company, is attending to the improvements in the High School Building, at Williamstown, Mass.

THE HOWARD HOSPITAL and Home for Incurables have applied for a permit for a new \$20,000 building on their grounds, on the southeast corner of grounds, on the southeast collector Broad and Catharine streets, Philadelphia, Pa. The building will be built of brick, two stories high, and will be heated by steam.

J. W. ROBERTS, one of the enterpris-ing plumbers of Tampa, Fig., has secured contracts for the plumbing in 84 buildings in Ybor Clty, among them being the large Seidenberg and Trujillo factories.

JOHN E. BARR, who was awarded the contract for the plumbing of the large six tenement block on Margin atreet, Lawrence, Mass., belonging to C. A. Doube, will have the work soon completed.

THE CONTRACTS for fitting the High School Building, at Shamokin, Pa., with the hot water system of heating and also for the necessary plumbing were awarded to H. Floyd.

JOHN KEARNS has the contract for the plumbing in the residence of Wm. E. Smith, now being built at Bridgeport, Conn.

BENJAMIN F. SHAW, Wilmington, Del., has been awarded the contract for the plumbing at the power house of the Manayunk & Roxborough Inclined Plane Railway, at Shawmont, Pa., for \$4000.

OLDS & WHIPPLE will heat the new residence of Henry P. Hitchcoek, at Hartford, Conn.

J. J. HOGAN of 972 State atreet has the contract for the plumbing and heating of Robert Carr's new house, 113 Foster street, New Haven, Conn.

WALKER & CAREY, Waterbury, Conn., have the following contracts on hand: The plumbing of Frank Bronson's two-tenement house, on Hospital avenue; plumbing and hot water heating of Geo. Rowbottom's house, on North Willow street; plumbing and tinning of a three-tenement block Building, 43 to 54 Dearborn street.

O. H. Northrup, Easthampton, L. I., N. Y., has secured the contract for the Town Hall Building, at Greenfield, the plumbing, engine and fixtures in Mass., has been let to J. E. Hubbard.

John Lawton, Baldwin street; | plumbing and hot air heating of A. D. Warner's house, at Naugatuck; plumbing of Mrs. Breen's house, at Naugatuck; plumbing and hot water heating of W. D. Crampton's house, at Naugatuck.

THE MORRIS PLUMBING & SUPPLY Company have been incorporated at Houston, Texas.

THE S. II. BEARD COMPANY, New Britain, Conu., have closed contracts for the plumbing and steam heating of the Samlow Block and Hotel Columbia and the heating by hot water of the Allen Homestead at Pequabuck, and have also been awarded the contracts for plumbing the residences of Carison and Torell and II. Capen.

HINDLE & WILLIAMS of Newark, N. J., have ordered several Volunteer boilers of DuBois & Darrow, New York, to be used in some heating contracts they have secured.

AT A SPECIAL TOWN MEETING, at Houlton, Maine, last week, it was voted to raise \$1000 for new heating apparatus iu District No. 1 School Building.

THE PAUPER COMMITTEE of the city government, at Springfield, Mass., talked over the project of repairing the almshouse and puttling in a system of ventilation. They will not advertise for bids until the matter has been looked into more thoroughly.

THE REPAIRS on the High School Building at North Adams, Mass., are under way. It is to have new heating apparatus put in and scientific ventilation will be provided.

THE FIRM OF BRADLEY & BRIGHAM, Marlboro, Mass., have been awarded the contract for doing the plumbing work in the French Convent School Building; also the construction of the galvanized iron ventilating flues to be used in the system of ventilation there. Six thouand pounds of galvanized iron will be used in the flues.

THE BOARD OF EDUCATION OF SIOUX CITY let the contract for making changes in the plumbing of the High School Building to the Iowa Construction & Mig. Company for \$218.

THE SCHOOL BOARD OF NORWOOD, Onto, have awarded the plumbing contract for the three buildings to E. R. Parrv.

ALBERT A. CRYER & Co., 85 Centre street, New York City, placed two No. 320 seven-section Richmond hot water heaters in the apartment house of Patrick Sheriden, and two No. 320 ten-section Richmond steam heaters in the store of Thomas Kelly, on Fulton street, Brooklyn. They have the contracta for placing Richmond steam heaters in the hotel at White Plains, N. Y.; in the residence of John P. Smith, North Newark, N. J., and in the residence of John A. Richard, at Erastina, Staten Island.

THE NEW JERSEY STATE BUILDING has been removed from the Worla's Fair Grounds to 736 Bond avenue, Chicago, and is being fitted up as a residence by G. T. Kessler. The steam heating plant is being put in by Cook & Chick, 253-255 Kirzie street, Chicago.

M. J. CORBOY, 78 Dearborn street, Chicago, has the contract for plumbing, gas fitting and aswerage in the Athenseum Building, 48 to 54 Dearborn street.

the house which is to be remodeled and altered for Charles G. Thompson at Easthampton.

THE WALCOTT HURLBUT COMPANY, 175 177 Lake street, Chicago, have recaived orders for 17 sections of the Siphon Eduction closet range from By City, Mich., and S sections from Escanaba, Mich.

THE KELLY & JONES COMPANY, 48-52 North Clinton street, Chicago, are to install a steam heating plant in the Hambelton Apartment House, Belmont avenue and North Clark street.

CHRISTIAN & Co. of Boston have been awarded the contract to put in the heating apparatus for the Mayo Lockey Block at Fitchburg, Mass.

The John Davis Company, 69-79 Michigan atreet, Chicago, report the following contracts: Engine connections for the O'Neill elevator, South Chicago; repairs to Waubansia Club steam heating plant, 355 La Salle avenue; overhauling Cook County Normal School ateam heating plant; installing steam heating plant in the John High Estate Building. Franklin and Michigan streets.

THE STOVER HEATER COMPANY, 89 Lake street, Chicago, report the following sales of Cuba boilers: For the four buildings of Julius Blaine, Forty sixth street and Forrestville avenue; residence of Jas. Sokup; flat building of Mr. DeYeuog, Hoyne and Chicago avenuea: residence of L D. Thomas, and residence of Mr. Luelgert, 629 Diversey avenue.

THE FULLER & WARREN COMPANY. 134 Lake street, Chicago, have received orders for their New School furnace to be placed in school buildings at Detroit, Mich.; Valley City, N. Dak.; DeKalb, Ill., and Kirkville, Mo. Also four combination heaters for buildings of H. Rubens, Calumet avenue; one combination heater for residence of J. R. Hansell, 5444 Ellis avenue, and furnace for the church, corner of Superior and Franklin streets.

JOHN B. SMITH & COMPANY OF Lewiston, Maine, have been awarded the contract for the plumbing on the new Masonic Temple In Augusta, at \$605.

THE NEWARK HEATING & VENTI-LATING COMPANY, Newark, N. J., have placed their order with DuBois & Darrow for a Volunteer boiler to be used in a heating contract which they have secured at Washington, D. C.

THE BAKER & SMITH COMPANY, 193-197 East Van Buren street, Chicago, are to install a ateam heating plant on the Ohio River ateamer "Clyde." Steam for heating will be taken from the steamer's boilers.

J. R. Hodges, Mansfield, Mass., is having a Victor ateam heater put in his new house on Union street. James W. Gifford is the contractor for both the heating and the plumbing.

AT A MEETING of the trustees of the Bridgewater, Mass., Academy a committee consisting of H. M. Blackstone, Dr. Calvin Pratt and P. O. Clark advised the trustees concerning the putting in of a new heating, ventilating and sanitary system. The proposed system will cost in the neighborhood of \$3000. The contract was placed with the Smith & Anthony Company of Boston.

THE CONTRACT for making alterations and repairs in the plumbing of

## STOVE TRADE NOTES.

### The New England Stove Trade.

What change there is in the condition of the stove trade in this section is in the direction of improvement, but there is very little life to it. There has been a noticeable increase in the number of inquiries, but the business resulting therefrom has been small and scattering. A number of the leading spirits among the Boston trade are still away on vacation, and it does not appear that many concerns have found it necessary to "come to attention" to receive the advance guard of the fall Some out-of-town dealers have already made their appearance in this market, but none of them have very encouraging reports to make. They are, as a rule, about as enthusiastic as a dealer from the Cape district who bought a modest supply of goods with the remark, "I suppose the floor will have to be filled with something, so give me a small assortment of showy and inexpensive goods." Parlor stoves are more active than they were in July, and ranges, if anything, a little less so. There seems to be a disposition on the part of the retailer to insist upon lower prices, but there has been no considerable shading by the manufacturer as yet. Collections are fairly satisfactory and the general feeling somewhat better. Doubtless when every one is ready for business and the season is a few weeks further advanced the hopes of the more conservative sellers will be fully realized.

The season for refrigerators and gasoline stoves is about passed and oil heating stoves are beginning to be in good request. There is also some little activity in the repair trade. Furnaces are moving much more freely and some manufacturers already have a gratifying number of orders. This branch of the trade promises to be quite busy during the coming season.

### Meeting of Southwestern Stove Manufacturers.

In pursuance of a call issued by D.

M. Thomas, secretary of the National
Association of Stove Manufacturers, a
meeting of stovemen was held at the
Southern Hotel, St. Louis, Mo., on
Monday of this week. All the foundries in St. Louis were represented at the
conference, as well as many of those in
Evansville, Ind, and Memphia, Tenn.
The object of the meeting, over which
Secretary Thomas presided, was to
afford the opportunity for a general in-

terchange of opinion regarding freight matters and the consideration of questions in which the trade at large were not directly concerned but which were of important local interest.

While this gathering was the first of Its kind which has been held, we understand it is not to be the last, for it is to be followed in the near future by others of a similar nature. The meetings are intended more especially for the gathering together of stove makers in the South and Southwest. The reason why manufacturers from other sections will not be invited to attend is that matters of interest to members of the trade in Missourl, Southern Illinois, Indiana and Tennessee are not likely to commend themselves to the serious consideration of stove manufacturers in Michigan, Pennsylvania, the New England States or other sections remote from the South and Southwest. In other words the meetings are to be held for the discussion of questions of local interest and from them much good is expected to result. We understand the next meeting is to be beld in November of the present year at either Evanaville, Ind., or Memphis,

### Enterprise Stove Company

of Vincennes, Ind., have brought out their annual catalogue in the shape of a publication of 80 pages, profusely illustrated and bound in colored paper covers, one of which carries the form of guarantee accompanying each stove or range sold. The goods illustrated are made under the generic name Star, with such prefixes as Home, Rising, Guiding, North, Bright, Silver, Rival, Tropic and Boss. Nearly 40 pages are devoted to cook stoves and ranges, while the remainder of the catalogue is given up to heaters of various kinds. The leader is known as the Star Diamond, a square parlor base burner of artistic design and substantial construc-The arrangement of parts is such that the cold air is carried from the floor and the volume of hot air for the room above is increased by inlets of air around and under the nickeled upper section. The effect of this is said to increase the power of the stove as a double heater, as well as to make it a most effective circulating or ventilating heater. The fire pot is made unusually deep and heavy, the ash pit is large and deep and the grate is the "Ransom improvement of the duplex." The stove is made in three sizes, with diameters of fire pots 12, 14 and 16 inches, re-In connection with the apectively. Star Oak, made in three sizes, there are presented cross and vertical sectional views clearly showing the constructive features. Cannon, box, laundry and cylinder stoves are also considered, as well as hollow ware, tln trimmings,

### The Thatcher Furnace Company.

The foundation of the Thatcher Furnace Company, 240 Water atreet, New York, was laid in 1850 by J. M. Thatcher, the inventor of the Thatcher furnace, and the company were incorporated in 1889. Charles O. Lyon was elected president and was eminently qualified for the position, having had a long experience as a salesman in making terms, hearing auggestions and criticiam and in locating and removing the trouble in badly arranged heating plants. Edward Benedict is the treasurer and has the management of the foundry and the pattern making department. L. M. Thatcher is the secretary, and a life spent in the business brings little to his care that is not satisfactorily disposed of. On the incorporation of the company they moved their manufacturing plant to Newark, N. J., where it was laid out with the idea of making additions as the business demanded, until their shops are now a model of convenience; railroad siding, sand cellars, coal and coke bins, pig iron yard, foundry, mounting shop, warehouse and office, all arranged for labor saving.

The Thatcher tubular furnace, which has been the leader of the house, apreading its name throughout the country, is possessed of several pecul-iar features. The fire pot is a remarkable example of extended surface. By a peculiar arrangement of tubes a large heating surface is presented without affecting the surface usually presented. The furnaces are made heavy and substantial in all parts and a great durability is claimed for them. The Scorcher ity is claimed for them. is a less expensive furnace of excellent reputation. In response to a demand for a range by their trade the Thatcher single and double oven range have been produced in excellent style and are be-coming rapidly popular. The latest coming rapidly popular. The latest addition to the goods of this enterprising company is a line of steam and-hot water heaters under the name of Champion which is meeting with marked favor among the trade. In May the company moved to a new salesroom at 240 Water street, which has only recently been completely arranged with samples. Secretary Thatcher will be found just inside the door with a welcome and a fund of information on all subjects. President Lyon has an office in the rear where none are ever turned away without encouragement.

### Danville Stove & Mfg. Company,

with works and main offices at Danville, Pa., and branches at New York and Chicago, have issued a well arranged catalogue and price list of Beaver stoves, ranges and heaters. It is a work of over 140 pages, carefully printed and profusely illustrated. The binding is in a delicate shade of light blue, carrying an embassed side title in letters of old gold. Following an announcement of terms and special notices, classification of castings for repairs and an alphabetically arranged index, there

are 70 pages devoted to ranges made under the name Beaver with various prefixes. These goods are carefully made, neatly ornamented and have met with a gratifying sale. New patterns are being added as the requirements of the trade seem to demand, so that the assortment is always up to date. The cook stoves occupy about 30 pages, after which are presented the heaters, the place of honor being given to the Beaver square parlor, for hard coal. This in turn is followed by the Princess Beaver, made revertible flue and indirect draft; the Ideal Beaver, for hard or soft cosl, and made in four sizes; the Beaver Oak, for coal or wood, shown plain and with ventilating flue, the Beaver Franklin, adapted for using coal or natural gas, and the Montour globe. The closing pages give attention to hollow ware, mica, stove bolts and repairs.

#### Belleville Stove Works.

The Belleville Pump & Skein Works, proprietors of the above named concern, at Belleville, Ill., have distributed to their friends in the trade a very attractive 120-page catalogue of St. Clair stoves and ranges. The size of the publication is such as to make it convenient for reference, while a back title enables the dealer to quickly find it when arranged on the shelf or table with other trade literature. The edges with other trade literature. are finished in bright red, the corners are rounded and the covers are of rich design. Among the opening pages we find directions for setting up and operating stoves, terms, prices of repairs and remarks relative to breakages and freight overcharges. The Acme wrought eteel range has the place of honor, followed by the St. Clair ranges which occupy 25 pages of the book. The cook stoves take up about 40 pages, the constructions being offered under such names as the St. Clair, Eclipse, Famous, Superb St. Clair, Belleville, Our Chief, New Aurora, Challenge, Matchless and Lily. The heaters fill the remaining pages of the catalogue, the leading place being given to the Prominent St. Clair, an air tight heater of unusually attractive design. The stove embodies the latest improvements and the company state it is "especially constructed to make the double heater feature a pronounced success." Other goods include the Laurel, St. Clair Oak, Cornelia, Merit Oak, Vulcan, Star, Merit Laurdry, Graphic St. Clair, Parlor Queen, Imperial and Pet. Hollow ware, elbows, stove pipe, &c., are also considered.

### ODD PLATES.

"OUR OIL HEATERS ARE THE BEST" is the proclamation of a four-page circular printed in green and red ink sent out by F. M. Borden & Brother, Philadelphia. Four points extending from a circle give their cardinal points, the ink being cardinal. A salutatory gives some interesting points on oil stoves, and cuts of the Sunbeam and All Right oil heaters in brown ink and of the Ideal, Electric and New Process in green ink show a line that has no "shopkeepers."

THE REPRESENTATIVES of the Thatcher Furnace Company, New York, are presenting a handsome new business card to their trade bearing a lithograph design in which Thatcher furnaces and ranges and Champion steam and hot water heaters occupy a prominent position. On the reverse side

is a view of their works at Newark, N. J.

E. E. Horton, one of the representatives of the Thatcher Furnace Company, 240 Water street, New York, has just returned from a two months' trip through Ohio, Pennsylvania and New York. The natural result is shipments all over these States of Champion steam and water heaters and Thatcher tubular hot air furnaces.

GEO. B. SCOVILL, Waterbury, Conn., according to the New Haven Weekly Record, has taken a contract to make the castings for the stoves and furnaces of the Richardson & Morgan Company of New York for one year, and is enlarging his foundry for that purpose. This will necessitate the employment of about 30 additional hands.

THE DANGLER STOVE & MEG. COM-PANY of Cleveland, Ohio, show illustrations of the Dangler gas radiators and heating stoves in a 20-page pamphlet which is being distributed to the trade. Iu offering the goods to dealers the company state that the demand for the patent radiators last season and the satisfaction they gave to users "fully demonstrate that an ordinary room can be heated with gas at moderate expense, and the dirt, annoyance and labor of heating with coal and wood can be avoided." The makers have added to their assortment a new return tube radiator which is sold at a low price. Another novelty in the way of a gas heating stove is described as the Dangler Columbia, made with either nickel or black base, center and top, and with round corrugated polished copper reflector, open from all sides, making it an attractive piece of furni-ture. In connection with the burner it is stated that a current of hot air is forced into the flame at its point of ignition and this with the air at the outside of the flame keeps in circulation a large volume of hot air "at a minimum of gas consumption."

THE KERNAN FURNACE COMPANY of Utica, N. Y., and Chicago branch at 71 West Washington street, issued under date of August 1 a wholesale price list of Kernan warm air furnaces and combination heaters. These goods are illustrated, and in connection with each engraving is a table showing the various sizes in which the heater is made, dimensions of some of the more important parts, heating capacity in cubic feet and list prices. Attention is also given to agricultural furnaces and kettles for coal and wood.

It is reported that the Thomas Stove Company have built a foundry at Ball Flat, Ala.

THE JOHN VAN RANGE COMPANY have just closed a contract for the complete equipping of the new Hotel Attas now in course of erection and completion at Dayton, Ohio. It is stated that the new house with its appurtenances will be one of the very best in the State and will be under the able management of A. B. Ridgeway, for many years in charge of the Phillip House of the same city.

THE DANVILLE STOVE & MFG. Company of Danville, Pa., favor us with a folder, printed in colored ink and calling attention to the Beaver range, which is claimed to be able to burn any kind of fuel, is fitted with duplex or triplex grate, as desired, and is adapted to use the company's patented system for heating upper rooms from the oven. The inside pages are embellished with views of two varieties of the Beaver range, accom-

panied by poems composed by James Whiteomb Riley. One is entitled "Like His Mother Used to Make" and the other, "Our Hired Girl," both, of course, referring to methods of cooking.

The Lehigh Stove & Meg. Company of Lehighton, Pa., are offering the trade the Gem Lehigh, a neat 5 hole range made in three sizes. The smallest has an oven measuring 13 x 13 x 9½ inches and the largest 17 x 17 x 11 inches. The stove has anti-clinker grate, top and shelf broiling door, illuminated wood door and nickel trimmings.

The Star Coupler Company, St. Louis, Mo., advise us that George M. Clark & Co., Chicago, manufacturers of the Jewel gasoline and gas stoves are now using the Star couplers exclusively in connecting water backs. The Star Coupler Company are in receipt of inquiries from Canada and also from several points in England. Their trade is increasing, and with their increased facilities they will be able to handle all the trade intrusted to them.

E. Bement & Sons of Lansing are sending out a little pamphlet containing testimonial letters from some of those who have handled the Palace Regal square parlor stove. These letters are of a highly commendatory character and indicate, in a measure at least, the degree of satisfaction which the stove has given both to dealers and users. The company ascribe the great success of the stove to the fact that it is so constructed that the hot air and amoke are exposed for a long time to a great extent of radiating surface.

"An honest tale speeds best when plainly told" is the title of a little folder descriptive of the Quincy radiator, an air tight wood heater made by A. Ohnemus & Brother, Quincy, Ill. The heater is made in two sizes, the larger being 26 inches long, 18 inches wide and 24 inches high, while the smaller is 21 inches long, 15½ inches wide and 24 inches high. The device is constructed with Russia iron and cold rolled steel bodies and No. 20 steel linings. It has cast iron front draft door with spark guard on the inside

HENRY GLEASON, agent, of 106 Beekman street, New York City, has issued a circular to the trade, calling attention to the improved conditions existing by reason of the settlement of strikes and the tariff question, and suggesting that every wheel turned in the stove foundries starts one in some other establishment. He asks that the wheels in his business be started by sending orders for urns, bronze figures, stove knobs, hinge pins, stove tiles, gas cocks, air mixers and other specialties for which he is agent.

THE TRIUMPH warm air furnaces and combination heaters are the subjects of consideration in a very neat pamphlet just issued by the Craig-Reynolds Foundry Company, with main office and works at Dayton, Ohio, and Western branch at 82 Lake street, Chicago, Ill. The pages are 7½ x 10 inches in size, permitting the use of large cuts which clearly show the constructive features of the goods illustrated. There is a chapter on "Principles of Heating," with remarks touching the selection and construction of a heating apparatus, followed by brief reference to the various styles of apparatus comprised in the Triumph lines. The engravings in many cases represent broken views clearly indicating the internal arrangement of parts. Tables,

which are contained within the covers of the pamphlet, give the weights, measurements and capacities of the various sizes in which the goods are made.

KERNAN FURNACE COMPANY of Utica, N. Y., have issued through their Western department, 71 West Washington street, Chicago, a descriptive and reference catalogue of Kernan warm air furnaces for soft coal. These furnaces εre of new design and are so constructed that the air for draft is heated. principles underlying the system are explained in the introductory pages, in which the company state that they are the pioneers in using a heated draft. The furnace is termed by them the Kernan smoke consumer, as perfect combustion is secured, with the avoidance of the formation of soot. Illustrations are given showing the internal construction of the furnace, the arrangement of draft flues, the hexagonal grate used, &c. After several pages of testimonials, a perspective view and ground plans are given of a school house heated and ventilated on the Kernan system. The Western office is also distributing a very nest miniature catalogue and price list of Kernan warm air furnaces and combination heaters for hard as well as for soft coal.

JESSE REYNOLDS, senior partner of the firm of J. Reynolds & Son, Thirteenth and Filbert streets, Philadelphia, dted August 17, after a lingering illness, at his residence, 1221 Green street. Mr. Reynolds, who was born 80 years ago at Rising Sun, Md., was a pioneer in the furnace and range trade in Philadelphia and built up an extensive business, in which he amassed a snug fortune. He was active in Mssonic circles and a trustee of Green Street M. E. Church. One son, William T. Reynolds, survives him.

The John Van Range Company, Cincinnati, Ohio, who were recently awarded the contract for the complete culinary equipment of the new lake steamer "Northwest," plying between Buffalo and Duluth, by her owners, the Northern Steamship Company, have just received an order to duplicate the outfit for the latest addition to their magnificent fleet, the "Northland," the latter being a counterpart of the "Northwest." These vessels comprise two of the largest, swiftest and handsomest steamers engaged in the lake passenger traffic service, measuring 386 feet over all, 44 feet breadth of beam and supplied with 7000 horse-power engines having an actual speed capacity of over 21 knots. The outfits furnished are in thorough keeping with the rest of the appointments on these magnificent steamers.

WE ARE INDEBTED to the Raymond & Campbell Mfg. Company of Middle-town, Pa., for advance sheets showing some of their new goods for this sesson. The first to which our attention is invited is the Art Perfect, a full revertible flue base burner of graceful outline and appropriate ornamentation. It is so constructed that the cylinder can be removed by simply taking out two bolts, while the entire upper nickel section can readily be removed as one piece. The stove has large ash pan, Ransom duplex grate and two large hot air flues in the rear of the stove for taking the heated air to the floor above, thus making it a powerful double heater. The Perfect is a new square stove, direct draft, embodying the latest improvements and decorated in an attractive style. The Perfect Gem

is a medium priced single and double heater made in three sizes. The company have also added to their assortment the Electric oil stove, having taken the exclusive agency for the heaters, ranges and cook stoves made by the Electric Oil Stove Company.

THE WILLIAM G. FISCHER MFG. COMPANY of Kokomo, Ind., are distributing a folder to the trade directing attention to the Fischer steel ranges and other culinary implements which they manufacture, in over 170 varieties. The company refer to their extensive works, location and shipping facilities as enabling them to promptly fill orders "and make terms and prices to suit the times."

ONE-HALF the ownership in the Susquehanna Iron Works, Middletown, Pa., owned by the Raymond & Campbell Mfg. Company, has been transferred by Joseph Campbell to the sons of the late Seymour Raymond. With the idea of further extending the business, which has always been a prosperous one, it has been decided to issue \$150,000 coupon bonds based on a first mortgage security.

SCANLAN & Co. of Louisville, Ky., have just issued from the press an exceedingly neat and attractive pamphlet of over 60 pages, devoted to new patterns of grates, frames, baskets, linings, &c., for the season of 1894. The printing is in two colors, each page carrying in the center at the top an ornamental piece, which we take to be a fac-simile of their trade-mark. The designs presented are numerous and artistic, the engravings in many instances being made directly from photographs of the finished articles. In connection with the illustrations are given size of openings, style of finish and prices, together with the statement that all goods are guaranteed. The assortment is extensive and the company enjoy facilities which enable them to make prompt shipments. We also have before us a copy of a little work entitled "Suggestions to Buyers of Grates or Fire Places, and 'Pointers' on the Advantages of Scanlan's Patent Challenge Victor, Climax and Triumph It is a pamphlet of over 40 pages and gives well executed engravings of the goods named. Accompanying this publication is a trade price-list of patent grates, f.o.b cars at Louisville, subject to a certain discount.

THE DETROIT STOVE WORKS of De troit, Mich., state that the Detroit Jewel parlor heater is the only one of many new constructions shown in their 1894 catalogue, a copy of which will be mailed to the address of any dealer who may apply for one. The company will also send their 1894 discount sheet to any one who will take the trouble to write for it.

ONE OF THE LATEST advertising novelties issued by the Detroit Stove Works of Detroit, Mich., is referred to as a "boon to housekeepers," and is entitled "The Household Reminder." It consists of a piece of heavy cardboard, measuring about 6 x 9 inches, with the greater portion of one side occupied by three columns of names of articles for household use. The printing is in bold faced type so as to be readily seen at a short distance. Opposite each name is a hole into which fits a little wooden peg, there being a number furnished for the purpose. The idea of the scheme is this: When the stock on hand of any article in the kitchen runs low a peg is placed in the hole opposite the name of the article so that when ready to send to the

store for supplies a glance at the pegged board shows what is needed. The card is arranged to hang up in a convenient place, and carries on its back a table of a few weights and measures useful in the kitchen. As might naturally be supposed, reference is made here and there to the Jewel stoves and ranges.

THE ROCK ISLAND STOVE COMPANY of Rock Island, Ill., are pushing their specialties and calling particular attention to the Home Riverside range and Riverside Oak. The former is a new construction with rich ornsmentation and embodying the latest improvements. It is referred to by the makers as the "perfection in art and finish."

THE PERRY STOVE COMPANY, 242 Water street, New York, are showing several new things that will attract the stove dealer when he comes to town. Under their trade-mark name Argand the company are showing a line of five different styles of oil heaters, ranging from the Baby Argand bathroom heater to those having a capacity for heating large rooms. They are made with planished iron bodies, ornamental top, and handsomely nickel plated bases of different designs, in which the oil tanks are set. All have quick lighting devices and are provided with indicators to denote the amount of oil in the tank. Two new sizes have been added to both the New Hero and New Gipsy lines of ranges. The New Grand, that is designed to sell at a low price, is a very handsome square heater, full nickel trimmed and provided with all convenlences. The Cadet is a new cylinder stove made in nine sizes from 8 to 16inch diameter, with a shaking slide center grate, clinker door and a swell ash door that gives it a very attractive appearance, but the taking feature is the method of connecting the body. The planished body fits down inside of the casting and is secured by bolts, making an invisible joint and one which overcomes the trouble of fine ashes and dust escaping at that point.

THE FALL CATALOGUE of gas stoves made by Luther & Lederhos, No. 30 Cliff street, New York, is just being sent to the trade. It has a light brown cover, which carries the address of the firm and a picture of their new base heating radiator. Within the pamphlet the first stove shown is the Brilliant Star, a round heater with an open reflector and a door for lighting the burner, which is of the illuminating style, the light shining brilliantly through a star in the front. The stove is also made with an upper section for heating large rooms. Next comes a new line of gas radiators, known as the Enterprise and of handsome design. This is so made that the hot gases pass back and forth through horizontal tubes till the exit at the top is reached, and which is so arranged that a chimney connection can be made. It is followed by two styles of vertical tube radiators, one of which is very prettily ornamented with nickel and jewels, the other being less pretentious and less costly. Then appear the Home Comfort, Pilot and Enterprise reflectors, the Enterprise asbestos heater, Enterprise gas log, and the Eclipse, Charm and Little Wonder gas heaters. The next pages are devoted to the Enterprise, Hercules and Ruby oil heaters, followed by small oil stoves for cooking and for use with a heating drum. The Enterprise lamp heating drum. The Enterprise lamp-stove is made with one and two burners and with cast iron and tin tanks. Next is a gas stove for nurseries and a gassoldering and plumbers' furnace, the Acme gas asdiron and a line of gas atove supplies. The last page shows the Enterprise gas range for cooking, which is sessonable throughout the year. The catalogue will be sent to all who apply for it.

THE DETROIT STOVE WORKS, under the supervision of their superintendent, Lafayette Crowley, have just completed for the committee on standard tests of the American Society of Mechanical Engineers the esstings of 12 series of tests bars; each series comprises in duplicate every size of test bar that has ever been used, ranging from 1 to 4 inches square, and for transverse, tensile or compression test. A separate hest was made for each series in a cupola especially arranged for this work, and the silicon was made to vary from 1 to 31 per cent. Six of the series were made from Iroquoia (coke) pig, and six from Henkle (charcoal) pig iron. the member of the committee who has this matter in charge is W. J. Keep.we shall expect some valuable conclusions regarding the relative strength, shriukage and chill due to change in composition and size of the casting.

THE KEARNS & RUDOLPH RANGE COMPANY were dissolved on the 14th inst. Charles Rudolph has purchased the interest of John J. Kearna in the company and will continue the business under the company name. There is a good demand for the wrought steel ranges and culinary apparatus manufactured by the company, and under its new proprietorship such demand will no doubt increase.

J. W. PANSON of the firm of J. W. Paxson & Co., Philadelphia, sails for Europe in the steamship "City of Paris" on Wednesday next. He purposes making an extended tour among the principal business centera.

THE CHICAGO & ERIE STOVE COM-PANY's works at Erie. Pa., came near to being seriously damaged by fire last Wednesday night. The fire started on the roof of the molding department, hut was extinguished before it had done any harm worth mentioning.

### Trade Notes.

E. BEMENT & Sons, Lansing, Mich., issue a new catalogue relating to Bobsleds of their manufacture. They make an extensive variety of these gooda adapted for farming, logging, mining, as well as Sleds for roads and mountains. The illustrations show many different styles of Sleds, and price-lists are given.

THE PROMINENT page announcement in the issue of the Windsor Heater Company, Gslens, Ill., will be of interest to the heating trade throughout the country. A large cut shows the construction of the boiler, which, according to the wording of the advertisement, is adapted for hard and soft coal.

THE BLACK DIAMOND extra coated Roofing Plates are the subject of the adrooning Plates are the subject of the advertisement of the Black Diamond Tin Plate Works, 51 and 53 Laurel street, Philadelphis, that appears elsewhere in this isaue. The plates are described as thoroughly American, and the trade are invited to send for sample sheets for testing.

ATTENTION is called to the advertisement of the Marion Stove Company of Marion, Ind., which appears elsewhere in this issue. A cut is given which shows the company's Retort Stove in its care of them.

new dress. The increased attractiveness of the Stove is expected to add considerably to its aelling qualities. The Stove is adapted to the use of any kind of soft coal, no matter how "sticky." The increased trade enjoyed by the company from year to year is the best evidence that the Stove meets the expectations of consumers.

WE HAVE RECEIVED a catalogue of 48 pages from the Manneer Drill Mfg. Company, Rochester, N. Y. The first pages show Bench and Post Drill's for shops, followed by a variety of Twist Drills, Drill Sockets and Drill Chucks. A page is devoted to Pipe Wrenches, Pipe Cutters and Combination Wrenches, after which are shown Portable Forges, Blowers. Combined Punch, Shear and Bar Cutters, and then come Taps and Dies for cutting threads for all purposes.

THE ETTE & HENGER MEG COMPANY, St. Louis, are issuing a pamphlet to b: inserted in their catalogue No. 3. pamphlet consists of eight pages, and contains descriptions and prices of Grindstone Fixtures. Shoe Lasts, Lap Las's, Flower Pot Brackets, Japanese Lawn Sprinklers, Hose Pipes and Blind Hinges. Particular attention is directed to their line of Shoe and Lap Lasts, which are made in a number of sizes and at low prices.

A PRETTY CARD is being sent out by the Bellaire Stamping Company, Harvey. Ill., calling attention to the Columbian Enameled Ware. The scene depicted on the card is a kitchen interior, and the faces of the mistress and maid are exquisitely executed. Awful caricatures too often decorate such ad. vertisements, and it is a relief to find such artistic work as in the present

THE TRADE will be interested in the four page announcement elsewhere of the Phillips & Clark Stove Company, Geneva, N. Y. The first page shows the 1894 and 1893 patterns of the Art Andes Parlor Stoves, then the Crown Andes, Pearl Andes, Grove Andes and Magle Andes are illustrated, followed by the Grand Andes six hole Range, the Glen Andes six hole Range and the Lake Andes and Active Andes four-hole Ranges. The Phillips & Clark Stove Company have an Eastern branch at Troy, N. Y., and a Western agency with H. Rendtorff & Co., Chicago, Ill.

PIERCE, BUTLER & PIERCE MFG. COMPANY, Syracuse, N. Y., are sending out to the trade cards relating to the Parlor City Flue Cleaner. An illustration of this device is shown on the card and a general description is likewise given. A price-list is printed on the back of the card.

Which Is Cheaper, Gas or Coal?

The following letter by R. E. Edmonds of the Pennsylvania Gas Furnace Company, Buffalo, N. Y., is taken from a Buffalo daily paper: "I have from a Buffalo daily paper: "I have seen a number of articles in your paper which state that gas is more expenaive than coal for heating. I claim that gas is from 25 to 50 per cent. cheaper than coal. There has never been honest competition between the two fuels. It will not do to tell us of the ninetcenth century that we are going back to coal, with its dust, dirt and ashes and expense of keeping stoves and furnacea in repair, to say nothing of the labor required to take

"With gas in stoves and furnsces? we have no dust, no dirt, no labor and not half of the expense for repairs; moreover, gas stoves and furnaces will last twice as long as coal stoves and furnaces. There is enough gas wasted every day in this part of Pennsylvania to supply Buffalo with heat and light. If 25 per cent, of the money spent in opening coal mines were expended in developing gas we would have gas enough and to spare.

"Would you expect to use electricity to run a steamboat whose boilers and engines were built for steam; or would you expect to burn coal to an advantage in a stove made for wood? principle is almost identical in both If these who wish to burn gas wish to compete with coal, let them buy gas stoves and furnaces. Stand in a gas office for 15 minutes and listen to the people who come to pay their gas bills and you will hear more complaining in those 15 minutes than you will hear in any store in a month. It is not the fault of the gas company that your bill is large, but it is your own fault. Get the practical gas stoves and gas furnaces and then watch the result.

"New gas fields are being found almost continually all over the United States and Canada. To prove this, see the following copy from the eleventh census report of the United States:

" 'Natural gas found in the following States-Alabama, California, Colorado, Illinois, Indisna, Iowa, Karsıs, Kentucky, Louisiana, Missouri, New York, Ohio, Pennsylvania, South Dakota, Tennessee, Utah, West Virginia, Wis-consin, Wyoming and to some extent in Texas, Michigan, Arkansas and Wash-

ington. "The most important fields are those of Western Pennsylvania. Western New York, Northwestern Ohlo and Esstern Central Indiana.

"The time is not far distant when we will have gas all over the world. The Standard Oil Company have wakened up to the fact that gas is the coming fuel, and are putting labor and money Into it. They will soon control the gas as they do now the oll.

"It is true that a gas well occasionally gives out, becomes exhausted. Would you expect it to last forever any more than a coal mine? Drill new wells the same as you dig new coal mines; then the supply will be kept above the de-

"To show that gas is cheaper than coal, here is a letter from a man who has tried both in fair competition:

R E EDMONDS.

R. E. EDMONDS.

DEAR SIR:—Yours of February 8th at hand, and in reply will say that my coal and gas bill for the year before 1 used a gas furnace was \$102.50, to say nothing about a boy I paid \$5 per month for taking care of coal furnace. From October, '92, to October, '93, my gas bill for gas furnace, grates, cooking range and lights was \$52.30.

Yours truly,

Jamestown, N. Y.

"In every case where gas and coal have had fair competition, in circumstances described above, gas has proved the chesper."

THE AVERY STAMPING COMPANY, Cleveland, Ohio., issue a circular re-relating to Scamless Steel Hollow Ware and General Metal Work. Ware and General Metal Work. The Hardware and House Furnishing Department makes a line of goods, including the Avery Silver Steel Hollow Ware, Pure Niekel Saucepans, Steel Washers, Steel Garden Trowels, Steel Pipe Hook Plates, Pressed Steel Fence Posts and Hitching Posts, Ladles and Steel Mill Tote Boxes.

# TRADE REPORT.

### The Iron Market.

Thus far the expected general improvement in the Iron trade has materialized only to a very modest extent. In some lines and in some localities there has been a somewhat larger demand, but its volume is far from being such as to make the slightest impression upon prices. Since conditions have been abnormal, so far as supply is concerned in the trade of the Central West, a return to ordinary state of affairs means an approach to prices prevailing before the Coal and Coke strikes.

An increasing number of furnaces are getting to work, and the indications are multiplying that the supply of Bessemer Pig is exceeding the demand

Bessemer Pig is exceeding the demand.
While Pittsburgh and Wheeling are
firm for Steel Billets, other districts are
taking what business there is coming
up further West and in Cleveland.
Chieago has taken quite some orders,
and is aggressive and accommodating.
Buyers of Soft Steel have played a
waiting game for so long a time, with
the odds against them, that many will
only come in for future requirements
when tempting concessions are made.

Cincinnati, as the principal distributing point for Southern Iron, reports some good inquiries but at prices far below seilers' viewa. Ever so slight a feeler has some elements of encouragement.

Pig Iron.—The New York market fails to displaylany signs whatever of any improvement in volume of business. There is little inquiry, and that only for small lots. We note a sale of 500 tons of Bessemer Pig to an open-hearth plant in this vicinity, the balance of the requirements of the year having been taken by a Lehigh Valley company. We quote standard brands \$12.50 @ \$13 for No. 1: \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25.

In the Philadelphia market sellers say there is a much better demand for Pig Iron, but as yet it is difficult to get better prices. Those who ask an advance lose the business, but in some cases order books are in such condition that makers prefer to do that rather than accept medium or inside current rates. It is very encouraging to note that sellers are beginning to assert themselves, but the contest is not decided yet, although a couple of weeks more may settle the matter. General quotations for Philadelphia or equivalent delivery are as follows:

Standard No. 1 Foundry X Standard No. 2 Foundry X	11 50 GA	10 00
AVU. A PIRID	10.75 @	11 OO
No. 1 Soft No. 2 Soft	11,50 @.	11.75

Trade has been fair in the Chicago Pig Iron market the past week, but heavy buying seems to be over for the present. Carload lots are in good demand from the smaller foundries, which are gradually getting more work. Shipments are increasing rap-

idly and shipping instructions are now running shead of terms specified in contracts. Merchants say if this continues at its present rate contracts will have to be increased and prices will be considerably strengthened. These remarks apply solely to local Coke Iron. Southern Iron is neglected, sales being confined to occasional carload orders. Lake Superior Charcoal is also quiet, but as car orders are now coming up it is expected that Wheel Foundry will soon be running on a larger scale, which will lead to a heavier consumption of Charcoal Iron. Quotations are given as follows for cash:

Lake Superior Charcoal	\$14.25 @	\$15,00
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10.00 @	10.25
Local Coke Foundry, No. 3	9,50 @	10.00
Local Scotch	10.25 @	
Ohio Strong Softenon Mr.		10,50
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	Õ	
Southern Coke, No. 2	10.75 @	11.25
Southern Coke, No. 3	10,50 @	10.75
Southern, No. 1. Soft		
Routhown No. 9 Cost	10.75 @	11.25
Southern. No. 2, Soft	10.50 @	10.75
Tennessee Charcoal, No. 1	@	
Tennessee Charcoal, No. 2	@	
Alabama Car Wheel	17.50 @	18.00
Jackson County Silvery	15.25 @	16.00
Other Obio Silvery		
Other Onto Shivery	14.25 Ø	14.50
4.1 * * *** * * * * * * * * * * * * * * *		

Advices from Cincinnati intimate that there has been an increased produc tion of Pig Iron in most districts and there has been no such advance in the value of the finished product as to jus-tify the mills in paying an advance for Pig Iron. Foundry grades are well sustained but quiet, there being only moderate sales of No. 2 Foundry at \$7.50, f.o.b. Birmingham. There were numerous inquiries for round lots, aggregating upward of 10,000 tons for forward delivery, but buyers' views are so far below those of sellers that there was little actual trading. There is not much demand for Charcoal Iron and there is little more than single car lots selling. There is a fair quantity of iron being melted by the Iron Pipe Works, but the jobbing foundries are doing only a moderate business in this district. The tone of the market in general is easy. Quotations are as follows:

J	
Southern Coke. No. 1	<b>\$10.75</b>
Southern Coke, No. 2 9.75 @	10.00
Southern Coke, No. 3 9.25 @	9.50
Unio Soft Stope Coal, No. 1 14 50 @	75.50
Ohio Soft Stone Coal, No. 2 14.00 @	14.50
Lake Superior Coke, No. 1 12.50 @	13.00
Lake Superior Coke, No. 2 11.50 @	12.00
Hanging Rock Charcoal, No. 1., 16.00 @	17.00
Hanging Rock Charcoal, No. 2., 15.50 @	16.00
Tennessee Charcoal, No. 1 13.00 @	13.50
Tennessee Charcoal, No. 2 12.01 @	12.50
Standard Southern Car Wheel 16.25 @	17.00
Lake Superior Car Wheel and	11.00

Southern Coke, No. 1 Foundry	11.00	a	£11.25
dry	10.25	0	10.10
dry Southern Coke, No. 3 Foundry Southern Car Wheel	9.75	@	10.00

### Metal Market.

Pig Tin.—The record of speculative dealings during the week involves about 400 tons, and probably one-half as much sgain has been done in small lots oueside the speculative clique. Prices early in the week were run up about 0.30¢ for spot dellvery, but a reaction to former figures has taken place since then. In fact the market is laboring under the influence of tariff uncertainty and speculative manipulation that leaves ordinary calculations very much at a discount. Jobbers are therefore proceeding cautiously and consumers are quite as conservative, not only in dealings in spot stock but in venturing with future deliveries. A Western concern, however, just embarking in the manufacture of Tin Plates, is reported to have taken between 40 and 50 tons for immediate delivery on Thursday. Jobbing prices for small lots have been moved up to 20½¢ @ 21¢ for Straits Pig, with a cent in advance for Bars. Banca is quoted at 22¢ per lb.

Copper.—There has been considerable effort in the way of raising quotations, and the effort has been rewarded in a certain degree, but a good part of the wholesale business is reported to have been done at the former low figures, in the face of higher public bids. To all accounts, home consumers are liberally supplied with stock sent forward on previous orders, and it is plain that heavy consignments of late afford European buyers a full supply. Nothing new is divulged as to the efforts to effect a combination to restrict production and regulate prices. In small lots there has been no change, either in the general demand or in price, which remains on a basis of 101 % In for Lake Ingot.

Sheet Copper.—Consumers, within the last few days, have been evincing some revival of interest in Sheet Copper for cornice work. Inquiries have been decidedly more numerous, and while the nine conservative users seem inclined to await definite developments in regard to the tariff law and the effect of its final passage on general business, before placing their orders, some are already ordering more freely. Prices for small lots show no change from former quotations.

Plg Lead.—There has been a gradual fall in prices due chiefly to more liberal offerings of stock for delivery during the next 30 days and somewhat strained reports sent westward as to probable importations of foreign Lead under the provisions of the new duty. In small lots prices are unchanged at  $3\frac{\pi}{8}\phi$  @  $4\phi$   $\beta$  lb for American Pig, while the demand is of routine character.

Lead Sheet and Pipe - Very little improvement can be noted in the de-

mand for Manufactured Lead, although a rather better feeling is observed, especially in the Plumbers Supply trade. Prices are still very low, but it is thought that rock bottom has been reached, and that any future movement will be in an upward direction. A rather freer inquiry is reported.

Spelter.—Purchases here have been strictly routine and moderate, all told. The demand has not improved. Deliveries are not particularly prompt and some receivers state that shipments hence from the West are annoyingly backward. Prices for small lots have undergone no change.

Sheet Zinc.—No change has taken place since our last report either in price or in character of the demand, which continues limited.

Antimony.—The market remains that, there being merely a routine consumptive demand, and prices rather weak. For small lots from stock the following figures are quoted: Hallett's,  $9\frac{1}{2}\phi$ ; Cookson's  $10\frac{1}{2}\phi$  @  $10\frac{3}{2}\phi$   $\stackrel{?}{\sim}$  lb.

Tin Plates.—Quite a good business has been done in forward deliveries at prices based upon the prospective new duty, with proper contract terms. The movement was chiefly in stock for delivery during the last quarter of the year, including Bessemer Coke finish at \$3.80 for 100 lb, Siemen's at \$3.90 @ \$3.95, IC Charcoals at \$4.65 @ \$4.67\frac{1}{2} for \frac{1}{2} X. Assortment and other varieties at corresponding prices. The demand for spot goods has been a little more active, but consumers are not likely to purchase much beyond their actual current needs in view of the certain lowering of prices after October 1, if the new tariff bill becomes law. Under existing circumstances, there-fore, buying is likely to be limited in extent during the next five weeks, and importers will not be apt to retire more goods from bond than necessary, until they can avail themselves of the lower duty. Importations from this time on till the end of September will also be moderate. There is a very fair routine demand in this market for domestic Roofing Plates, especially those of a high grade. Prices show no radical change.

A special cable dispatch from London to The Iron Age, dated August 22, reports on the British Tin Plate market as follows: Tin Plate has been in active demand from America and elsewhere since the pas sage of the tariff bill, but the prices offered were below makers' views, and only a fair business was effected. Some makers have advanced prices from 6 pence to 2 shillings, and it is impossible to quote values accurately at the present time. Swansea quotations to-day are about as follows:

Bessemer Cokes, 14 x 20	107
Slemens Cokes, 14 x 20	10.6
Ternes, double box @	
Charcoals	14/

Sheet Iron.—The Sheet mills are all busy, and manufacturers' agents appear to be well supplied with orders. Galvanized Iron is more active, and jobbers report somewhat more interest in Black Sheets in small lots, though prices are still unsatisfactory and give no sign of any present improvement. Almost all the business doing is in lots for spot delivery, only limited forward dealings being noted.

THE FEATURE of the advertisement elsewhere of the Magee Furnace Company, Boston, Mass., is a letter from a customer in Rhode Island relating to

the Magec Grand Range and speaking in the highest terms of its popularity and efficiency.

### Chicago Report.

Scrap.—Only small sales are reported. Dealers quote the following list of buying prices, Chicago delivery:

Per	net ton	, Par Ib
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6,00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4,00	
Burnt Iron and Grate Bars	3,00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock		
No. 2, such as Shovels, Hoes,		
&c		
Old Boilers-whole (Iron)	3.00	
" (lron)—cnt in single		
Sheets and Rings		
Old Gas-Pipe and Boiler		
Tubes		
Cast Borings		
Turnings		
Horseshoes	7.00	
Copper Bottoms		536¢
Copper Clips and Heavy		7 8
Heavy Brass		5360
Light Brass		8 ¢
Pipe Lead		21/10
Tea Lead		2 ¢
Zine		2 0
Rnbber		31.7
Anthracite.—Trade cor	nnues	quiet.

Anthracite.—Trade continues quiet. Carload lots of 12 net tons or over are nominally quoted as follows:

	Egg, Sto.	
	Grate.	and Ch.
Chicago, Ill	\$5.25	<b>₹5</b> 50
Milwaukee, Wis	5.25	5,50
Kansas City, Mo	8.45	8.70
Council Bluffs, Iowa	8.45	8,70
Lincoln. Neb	8.6)	8.85
Sioux City, Iowa	8.45	8.70
Aberdeen, S. Dak	8.50	8.75
Dubuque, Iowa	6,55	6.80
Madison, Wis	6.75	7.00
St. Paul, Minn	7.75	8.00
Burlington, lowa	6,75	7 00
Des Moines, Iowa	8.20	8.45
Davenport, Iowa	6,55	6 80
St. Joseph, Mo	8.45	8,70
Leavenworth, Kan	8.45	8.70
Omaha, Neb	8.45	8.70

### Colorado Anthracite. COLORADO FUEL & IRON COMPANY.

\$8.00
8.00
8.00
8,00
10.00
8,85

THE SILL STOVE WORKS OF Rochester, Y., and with Western branch in Chicago, Ill., according to an announce ment elsewhere, are offering the trade this season four sizes plain of the Sterling ventilator square parlor heater and one size with oven. The ornamentation is of high order, the proportions are graceful and the constructive features of the most approved pattern. company are also making the Silver Sterling in two sizes plain and one size with oven. It is an attractive parlor stove with liberal mica illumination and decorative treatment, involving a judicious combination of nickeled parts with black iron surfaces. The goods of the company are popular with the trade and a constantly increasing volume of business is expected.

The Cleveland Foundry Company, Cleveland, Ohio, call attention elsewhere to the Puritan Oil Heaters, made in six sizes. The Nos. 44, 74 and 64 Heaters are illustrated and prices given. A list of branch houses and wholesale agents is appended showing where these goods may be obtained in all the prominent cities of the country.

### CONDITION OF THE

### Hardware Trade.

Since our last a tetter feeling has pervaded the whole trade. Travelers are sending in more favorable reports and orders have been more unmerous and for larger quantities. If this improvement should continue the fall trade will turn out much better than scenied probable a short time ago.

Advices from Chicago.—The Shelf Hardware trade shows some improvement. The demand for fall and winter goods now begins to figure in the orders received. Stove Boards, Coal Hols, Elbows and Stove furniture generally are moving to some extent, but not in large lots. Orders are small and almost invariably call for broken packages, causing much trouble and expense in packing departments. House furnishing goods are also in greater demand in the aggregate, but are called for in the same way in broken packages. Staple goods are picking up, but little inclination is shown as yet to lay in stocks or anticipate wants. The small size of the orders shows that goods are only being bought to meet the current demand, but the increased volume of business shows that the demand is steadily growing. Imported Tin Plate is advancing in price. Brokers' quotations for Chicago delivery, subject to duty, are about 30 cents per box above recent prices. Roofing Tin is in excellent demand, as well as Sheet Copper for cornice work. The Heavy Hardware trade runs along in fairly good condition. Orders in this line are also small, but latterly a tendency is shown to inquire for prices on larger lots, as though some consumers were getting the opinion that it would be a good time to lay in stocks of staple sizes and brands.

### Notes on Prices.

Wire Nails.—Since our last several mills have started and others are reported as preparing to go into operation. The demand is good, but this has had no effect in advancing prices. Carload lots at mill have been sold quite freely at \$1 @ \$1.05 The New York price for small lots is \$1.20 @ \$1.25.

Advices from Chicago. — Manufacturers' orders have increased heavily within the past few days. They assert that more business is in sight than at last year at this time, with practically no stocks to draw upon. They quote \$1.15 to \$1.17\frac{1}{2}, Chicago. Small lots from stock sell at \$1.20.

Cut Nalls—In this line both demand and production are increasing, but without improving the tone of the market as far as prices are concerned. We quote as representing the Eastern market 90 to 95 cents for carload lots on dock. The store price for small lots in New York is \$1.05 to \$1.10.

Advices from Chicago.—Orders are small and only intended for sorting up. Manufacturers in this line have not yet begun to feel the movement of fall trade. Quotations are ateady at 95 cents, Chicago, for 60 cent average. Small lots from store are selling at \$1.10 to \$1.15.

Barb Wire.—The Eastern demand continues very small, but reports from the West are more encouraging. In prices the market shows little atrength. The following are the quotations for Four Point Galvanized delivered at the points named: Pittsburgh, \$2 to \$2.05;

Cleveland, \$2.05 to \$2.10; Cincinnati or Allentown, \$2.20 to \$2.25; Chicago or New York, \$2 20 to \$2.25.

Advices from Chicago.—Jobbers are having a steadily increasing demand. Manufacturers seem to be waiting until trade grows to larger dimensions before they resume operations to any extent. Prices are firm, and large buyers acknowledge that they have been unable to secure concessions. Jobbers quote small lots of Galvanized at \$2.35, with 10 cents off for carloads.

Wrought Iron Pipe.—This line of goods seems to be suffering a reaction from its recent strength. Orders are not very plenty and manufacturers are pressing on the market. As a result prices have softened about 5 per cent.

Sturges Steel Churn.—This Churn was described in our last issue. It is manufactured by the Chicago Stamping Company of Chicago. The Churn is sold to the trade from the following list, subject to a discount of 20 per cent.:

No. 1, 9 gatton Churn, churus from 1	
to 4 gallons of cream	\$6.00
No. 2, 15 gallon Churn, churns from 2	
to 7 gallons of cream	-9.00

Bread and Cake Knife.—Aluminum Novelty Company, Canton. Ohio, are putting on the market Ball's Diagonal Corrugated Bread and Cake Knives. The Knives are sold to the trade at the following prices, which are net.

No. I. Bread Knife, polished steel	t doz.
blade No. 3, Bread Knife, nickel plated	\$1.50
No. 4, Cake Knife, nickel plated	$\frac{1.80}{1.50}$

Acme Steam Glue Pot and Stand.—Stuart & Peterson Company, Burlington, N. J., are manufacturing this article. It is sold from the following list, which is subject to a discount of 10 per cent. to the trade:

Each.

No. I, holding 1 pot	\$9.50
No. 2, " 2 pots	16 50
No. 3. " 3 "	25,00
No. 4, " 4 "	32.00
No. 5, " 5 "	
No. 6. " 6 "	
Glue Pots without frame	5,25
Inside Kettles, holding 5 qua-	

Glass.-No change of importance has taken place in the Glass market during the past week. Demand continues light and prices unsettled. Although there have been two conferences between the wage committees of the manufacturers and workmen, no agreement has been reached as to the wage scale for the ensuing fire. Conservative jobbers are not making large purchases at current quotations, and in Glass circles it is generally supposed that factories will make an early start. The New York market is represented by discounts of 80 and 20 to 85 per cent. Pittsburgh factory quotations in car lots are reported as being 85 and 5 per cent. for single and 85 and 10 per cent. discount for double strength Glass, while Pittsburgh prices for small lots of Glass are 80 and 10 per cent. for single and 80 and 20 per cent. discount for double. Imported Glass is still quoted at 80 and 10 per cent, discount.

Old Metals.—The following quotations represent about the rates now paid by New York dealers:

Heavy Copper	D 7
Light and Tinned Copper	D 634
Heavy Brass	1 b 5 ¢
Light Brass	1 Do 4 ¢
Lead	1 b 3 ¢
Tea Lead	D 284
Zino	1 1b 2 1/4
No. 1 Pewter	1 D 12 ¢

ı	No. 2 Pewter * D 6 ¢
ı	Wrought Scrap Iron. ₽gross ton \$8 @ \$8.50
ı	Heavy Cast Scrap. F gross ton 7 @ 7.50
ı	Btove Plate Scrap₩ gross ton 4.00
ı	Burnt Iron

Old Rags, Paper, &c. — Dealers' prices, New York delivery, are as follows:

No. 1 White Rags	D	3	0	81/	¢
No. 2 White Rags	D				
Mixed Rags₩	D	-/8	6.	8/	
Blues and 3ds	Ъ	3	@	17	
Hard Sized White Shavings	В	$2\frac{1}{4}$			
No.1 White Book Snavings #	D	184			
No.2 White Book Shavings	ь	11/8			
Light Book Shavings	В	, ,		56	
No. 1 Mixed Shavings ?	D	76	0		ø
Ne. 2 Mlxed Shavings 19	Ъ		@		¢
No. 1 Printed Books	ĪЪ	1	(4)		¢
Ordinary Mixed Books	D	36	0	8/4	¢
Newspapers	Ip			2-5	¢
No. 1 Manila Paper	lb	8/4	0	1	¢
No. 2 Mauila Paper	D	%	@	8/4	\$
Bogus Paper	Ъ			36	
Common Paper	Ъ			1,4	¢
Straw Chips	Ъ			8 M	¢
Binders' Clippings₩	$\mathbf{p}$			36	¢
Jute Butts	Ъ			11/8	
No. 1 Jute Bagging₩	$\mathbf{p}$				¢
Mixed Bagging₩	Ъ	8/4	@	1	¢
No. 2 Bagging ₩	Ъ				
Hemp Twine	Ъ	1%	@	2	¢
Manila Rope₩	Ϊb	2	@	21/	2
Jute Rope₩	Ъ	11/4	@	18/4	¢
Mixed Rope	Ъ	8/4	@	- 1∕6	¢
011 11 11 11 1			1	. •	

Old Rubber.—Dealers' purchasing prices, New York delivery, are as follows:

Car Springs, ton lots, & D	w	\$0.00%
Rubber Shoes, carloads, de-		
livered at factory, # lb	0	.04%
Rubber shoes, less than car-		
loads, \$ b	@	.04
Large Hose, # ton		15.00
White Wringer Rolls, # 1b		.03%
White Syringes, # lb		.03%

### FLASHINGS.

A LOCAL PAPER published at Madoc, Ontario, gives an extensive article relating to the Actinolite Works at Bridgewater owned by Joseph James. Actinolite is a fibrous mineral related to the hornblende family and closely allied to asbestos, which is used with excellent results, so it is stated, in roofing. In the article mentioned there is given a list of buildings that have been roofed with this material both in Montreal and Chicago.

C. MACKINTOSH, 61 Beekman street, New York, has added the Hastings quadruple roofing folder to his line of tinners' specialties. He has secured the territory of New England, New Jersey, Pennsylvania, Maryland and Virginia, and will also sell in New York State.

R.J. LETCHER & Co., 310 Grove street, Jersey City, dealers in tin plate, solder, sheet iron, &c., find some trade for terne plates with the edges all folded ready for the roofer.

DAVID LUPTON'S SONS, 2611-15 Coral street, Philadelphia, have commenced to manufacture corrugated conductor pipe. With the facilities at their command they should have little difficulty in making a success of their new departure and building up a large trade.

Among the contracts recently taken by James A. Miller & Bro., 129-131 South Clinton street, Chicago, can be mentioned the following: Slating and tinning work for houses of E. Hoffman and Mrs. Gillman, 458-460 Wabash avenue; slating, tinning and galvanized iron work for block of three houses of A. W. Rolason, Calumet avenue near Thirty-second street; tile roofing, &c., for residence of W. II. Winslow, River Forest, Ill.

galvanized from work for the school building at South Evanston and the Hinsdale High School.

Knoor & Blocks, 165 Wells street, Chicago, are to furnish the galvanized iron cornice, skylights, bay windows, &c., for the apartment building of A. Wiegand, La Salle avenue and Huron street.

The Delaware canneries are reported to be all running on full time, and business is much better than was anticipated. The failure of the peach crop, however, will take more than \$1,000,000 away from the Peninsula, which would have gone there had the crop been a good one.

#### CONTENTS.

	<del></del>		
1	Editorials :	PAG	E.
	Hot Water Heating		53
	Combination Heating		53
	"Organized" Labor		53
	Shop Sketches		53
•	The Letter Box—		00
			54
	Cesspools, Illustrated		
	Repairing Agate Ware		54
	Plumbers' Soil	• • •	54
	Pattern for a T Joint	• • • •	55
	Recording Stove Sales		55
	Practical Test for Plumbers		55
	Lecation of Fresh Air Inlet. Illus.		55
	The Maxim Flying Machine. Illustrat	ed.	56
	Trade Education Abroad		58
	Plumbing and Gas Fitting-		
	Montreal Master Plumbers		59
	Gas and Gas FittingVI. Illustrate		59
	Traps and Vents		62
	New Publications		63
			63
	Award for Sheet Metal Tools		00
	Steam and Hot Water—		0.4
	How Shall Radiators Be Vented?		64
	Hot Water Heating from Steam Bol		64
	The Sunbeam Boiler. Illustrated .		64
	Heating a Tenement. Illustrated		€5
	Heating Notes	••••	65
	The Retail Store—		
	The Crusty Bread Pan. Illustrated		66
	An Advertising Suggestion		66
	Tool Holder No. 6. Illustrated		66
	Penisular Furnace Shovel. Illus		66
	The Safety Stove Pipe Collar	and	
	Holder. Illustrated		66
	No. 2 Adjustable Power Press. Illus.		67
	Some New Tools. Illustrated		67
	Tin Plates—		
	The Welsh Tin Plate Situation		68
	Serap		68
	Heating and Plumbing-New Work		
			69
	Contracts		00
	Stove Trade Notes—		20
	The New England Stove Trade		70
	Meeting of Southwestern Slove Mo	ınu-	~~
	facturers	• • • • •	70
	Enterprise Stove Company		70
	The Thatcher Furnace Company		70
	Dauville Stove & Mfg. Company	• • • • •	70
	Belleville Stove Works		71 71
	Odd Platea Trade Notes		73
i	Which Is Cheaper, Gas or Coal?		78
	Trade Report-		
ĺ	The Iron Market	• • • • •	74
۱	Metal Market	• • • •	74
۱	Chlcago Report	• • • • •	75
۱	Condition of the Hardware Trade.		75 75
١	Notes on Prices	••••	75
١	Flashings		77
١	Labor Exchange—		•
١	Help Wanied		79
1	Bitnetions Wanted		79

## THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, September 1, 1894.

DAVID WILLIAMS, - PUBLISHER

#### BUSINESS OFFICES:

NEW YORK	96-102 Reade Street.
PHILADELPHIA	220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBURGH	Room 509 Hamilton Building.
CHICAGO59	Dearborn Street, cor. Randolph.
CINCINNATI	Rooms 22-24 Pickering Building.
ST. LOUIS	Bank of Commerce Building.
CLEVELAND	312 The Cuyahoga.

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

#### Cooking by Electricity.

It is stated that the ratio of cost of heat for cooking purposes as delivered from central electric stations by means of electrical appliances, which convert electricity into heat at any point desired, has been reduced until it now compares with heat produced by burning coal in cooking ranges as seven to four. That is to say, heat for cooking can now be obtained from electrical currents at somewhat less than twice the cost of ordinary fuel used for the same purpose. Probably this estimate is only justified by taking into account the heat wasted in getting coal fires into condition for cooking and that which also wastes while the fire is go ing out. The advocates of the newer method hold that electricity is hereafter to be a more or less formidable rival to gas for summer use in cooking. Although with the modern improved gas stoves most excellent work in all kinds of cooking, from broiling to baking, is possible, there are those who have used both systems who confidently assert that, as compared with results obtained in electric cooking, gas is interior. If this assertion be true (which many who have used gas stoves will hardly think possible), it can only be accounted for by the accurate regulation of temperature which electric heating apparatus permits. Yet the temperature of ovens in gas stoves can now be regulated with such precision as seemingly to leave nothing further to be desired, and hence we are disposed to discredit statements as to the great superiority of electric cooking as compared with that done in gas stoves. It is hardly possible that in point of cleanliness the electric cooking apparatus can exceed in any notable degree the best types of gas stoves, since all the dirt that accumulates about either of them results from drippings from the articles cooked upon them, these being more or less according as the operator is careful or otherwise. There is, seem-

ingly, a tone of exaggeration in many of the statements made and published with reference to electric cooking. Probably these are attributable partly to the zeal of those who are commercially interested in the manufacture and sale of electric cooking apparatus, and partly to the enthusiasm of those whose interest in a novel method somewhat beclouds their judgment.

### Improving Trade in the West.

The West reports considerable improvement in general trade. Merchandise of all kinds is in greater demand. and in some lines the prospects favor the largest movement for years. Railroad traffic has picked up remarkably, and on some lines a shortage of rolling stock is reported. The settlement of the tariff question is assigned as the main reason. The country has been kept bare of manufactured goods for a year or more, pending changes in duties, and now many merchants are disposed to return to their usual custom of carrying at least a reasonable stock, especially of such goods as are not affected by tariff changes. The strength of this impulse to trade cannot be estimated and opinions vary greatly. Some look forward to an immediate return of prosperity, arguing that an immense volume of business has been dammed up by the long prevailing uncertainty which will now precipitate a flood, with beneficial effects to follow for many days. Others, however, take a less sanguine view of the situation and think that the increased movement will soon spend its force, when trade will relapse into its old state of dullness. But no one can accurately forecast the future. Experience does not teach in this instance. because the conditions recently existing have been unparalleled.

### Existing Destitution.

If the improvement is permanent, and from this time forth business be restored to its normal condition, the entire nation will have reason to be profoundly thankful. Another winter like that of 1893-94 would bring even greater privations upon the unemployed, because savings have been more generally eaten up and the generous have less to spare to help their suffering brethren. A foretaste of what may be expected this winter if the hard times continue was given last week in Chicago. The Rock Island Railroad needed a moderate force of laborers to begin work on elevating their tracks, but on the day advertised the foreman in charge was dismayed to find a mob of several thousand men in waiting for a job. They became so riotous when not employed that it was necessary to call for

a large number of policemen to prevent them from doing violence to the fortunate few who had been put to work. Further, the destitution among Pullman strikers has been so great, and their trades union confrires have been able to do so little for them, that the Governor of Illinois felt impelled to issue a proclamation asking for assistance in their behalf in the name of humanity. Every industrial community is carrying a burden of this character to-day, and a revival of business cannot come too soon to bring relief.

#### The Tin Plate Tariff.

The initial effects of the new tiu plate tariff are shown in the closing down of all the smaller tin plate "dipping" works in this vicinity, a proceeding which will, doubtless, generally be followed by these establishments in other quarters. The ground seems to have been completely cut from under the feet of these and similarly placed establishments unless, indee1, the price of domestic black sheets is very materially reduced; as, under the revised tariff, they cannot afford to buy the imported article and dip it, so as to sell their product in competition with the foreign tin plates imported under the new duty of 1.2 cents per pound. The only other way of escape for the American dipper making the cheaper grades of plates would be if the Welsh manufacturers plucked up courage to raise their prices for the finished plates sufficiently high to approximate the possible prices at which American black plates can be profitably coated and sold here. It seems hardly likely, however, that our Welsh competitors would pursue so shortsighted a course in respect to their own interests after all they have suffered from the recent restriction of American orders.

The returns received at the office of the Controller of Currency at Washington of the amount of gold held by the National banks of the United States in July show that the New York State banks held \$80,104,000, or \$25,000,000 more than the gold reserve of the Treasury. The next three States on the list are Illinois, with \$26,406,000; Pennsylvania, with \$21,296,000, and Massachusetts, with \$11,915,000.

The palatial headquarters of the Knlghts of Labor in Philadelphia, having been found too expensive to maintain, has been given up. It will, by a strange irony of fate, be opened on Labor Day as a conservatory of vocal and instrumental music and so harmony will prevail in the place which has of late witnessed so much wrangling and diacord. Washington, it is said, will be the future headquarters of the organization.

tank under the ceiling if it were possi-

ble to put it on the joist above. Even if he could not place it above the bath-

room he could carry the water over with the supply pipe and have that much better head of water. If he can

place the tank above the joist, make the

tank as large as possible, of  $1\frac{1}{3}$  inch atuff, well put together and lined with copper or sheet lead; 10 or 12 ounce soft copper will do if well put in. Make the tank as deep as he can, as the deeper the water in the tank the better

pressure he will have. If he cannot place the tank above the joiat he had better make the tank round, as it will not take up any more room and will not bulge at the sides the same as a square one. He should use at least \(\frac{1}{2}\)-inch plpe for so small a head to anpply his boiler and be careful that he does not reduce the size with solder nipples that are not full size. I would suggest

# THE LETTER BOX.

### Recording Stove Sales.

From W. O. A., Roxbury, N. Y.—In The Metal Worker of August 18, "S. F. F." asks for a stove record. Below is a copy of one that I have used for ten years, which has saved me no end of trouble in ordering repairs. I know how many stoves I sell each year, also

tary matters. This spring water is very clear and sparkling and has started me to effervescing also, and if "C. F. B." was here and expanded by the grandeur of the locality he could absorb all that I could give him, affording me some pleasure and him, I hope, some information. A vacation is a good thing to take and don't cost half what it's worth.

Date.	No.	Purchaser.	Name of Stove.	Size.	Remarks.	Price
1803. Dec. 13 Dec. 21 Dec. 28 1894. an. 5 an. 13	37 38 39 40 41 42	John Smith	Mohawk Star Glen Andes	10 91/18 49 14 9 142	Duplex grate, 1891 Ret. flue Basket grate Double heater	12 ( 30 (

amount of sales. I begin the year always September 1, the first stove sold after this date being number 1, &c. I use an ordinary blank book  $4 \times 7$ .

### Raising Water by Compressed Air.

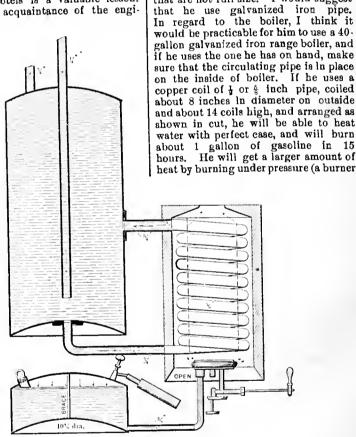
From B. B. M., Nevada, Ohio.—I am informed that there is an apparatus or system that will take water from a well or cictern and force it through a building so that on opening a faucet water runs, yet it is not a pump. I do not want a water motor. I am told the apparatua which has been described to me is called a water mover. I should be glad to get the address of the makers.

Answer.—A system for raising water by means of compressed air is perhaps what our correspondent refers to, and the apparatus necessary can be supplied by Kirtley Bros., Kansas City, Mo.

### Location of Fresh Air Inlet.

From G. W., Saratoga Springs, N. Y. —I am on my vacation and had my Metal Worker sent to me here, so I read "C. F. B'a" inquiry of August 25, and concluded that as the fresh air here was doing me so much good I could afford to blow a little of it his way. A fresh air inlet placed as he has it would not serve the purpose for which it is intended and would be of no use that his trap vent and back air pipe do not serve. The fresh air inlet should be placed on the house side of the trap on the pipe as it leaves the house to the sewer. serves a greater service in letting the air in the pipes get out when a fixture is flushed, otherwise the seal of the trap might be broken by compression of the air and possibly be destroyed by oscillation so that the odors would enter the building. It also affords a ventilation through the whole system of soil pipes when the back air pipe terminates above the roof, preventing an accumulation of foul air in the pipes. A fresh air inlet arranged as "C. F. B." has it would serve none of these purposes. It is odd how a fellow is disposed to talk "shop" on all occasions, but even if I am in the Park taking my Congress water I would be more than glad to have "C. F. B" here so I could lecture to him on sani.

Why, to study the plumbing in some of these big hotels is a valuable lesson. I made the acquaintance of the engi-



Heating Water for Bathrooms.

neer and have been all through and have seen several little kinks that are going to make me some money and have seen some bad botches as well. You can't learn it all in the shop and on your own work.

### Heating Water for Bathrooms.

From "S. M. E.," Rondout, N. Y.— In answer to "F. J. L.," Lawton, Mich., in The Metal Worker, August 4, I will try to help him out. The coil that he proposes to use will not heat sufficiently for what he wants. This I know from practical experience. In the first place, I would not place the that burns from natural pressure will not heat enough), but must have all connections tight. He can use any independent burner with a sawed burner cap; the ones with the holes in will not work, as they will blow out. He can get a suitable burner of the Lansing Stove Company, Lansing, Mich., and the filling caps and air valve of the Union Heater Supply Company, 88 Congress atreet, Detroit, Mich. He should get the air pump of a bicycle concern, but should not try the rubber bulb, as they do not last. The air pump should be connected to air valve with rubber tube, and wheel tight. The tank must be made strong with bottom and top raised,

as per cut, with piece of \$\frac{a}{5}\$ inch pipe through center for a brace, or it will not stand pressure. A Teed milk can bottom will make a good job for the top and bottom. They will double seam  $10\frac{7}{5}$  inches in diameter. They can be bought of the Buhl Stamping Company of Detroit, Mich. He can get the coil of the National Pipe Bending Company, 65 Lloyd street, New Haven, Conn. He must be sure and have his couplings brazed on coil instead of soft soldered on. This will make a first-class job and one that will heat quickly and be perfectly safe to use. In filling tank use 1 gallon, leaving rest of room for air. The pressure will last about three hours.

#### Construction of a Pantograph.

From G., Waterloo, Ioua.—Will The Metal Worker publish a description of the pantograph? I wish to make one, the bars of which will be 3 feet in

is to be placed. The instrument can be supported upon small castors or feet, which should move freely in all directions. In the cheaper forms of the instrument it is supported by the fulcrum A, pencil G, tracing point C and a screw eye at B. With the fulcrum at A, pencil at G and tracer at C, the instrument moving on the points or pivots E, B, F and D, it will be seen that G is exactly half way between C and A. C will then travel twice as rapidly as G, or over twice the distance. Thus the pencil at G will produce a copy half the size of the original traced over by the point C. If the tracer is placed at G and the pencil at C, the copy produced at C will be twice the size of the original at G. If we place the fulcrum at G and the pencil at A, the copy will I

with A B. We have thus secured the points E, B, F and D, upon which the instrument is pivoted. The points A. G and C are used as previously described. To secure the points for a one-third reduction, bisect  $\Lambda \to a$  and d aw a C, thus securing the point g in E G, a g being one-third the distance a C. For a one-fourth reduction, divide A E into three equal parts, and from E set off one of these divisions at a'. Draw a C, thus securing the point g in E D, a' g' being one fourth of a' C. For a one-fifth reduction, divide A E into four equal parts, and from E set off one of these divisions at a". Draw a C, thus locating the point g'' in ED, a'g''being one fifth the distance a" C. It will be seen that the distance A E is to be divided into one less number of parts

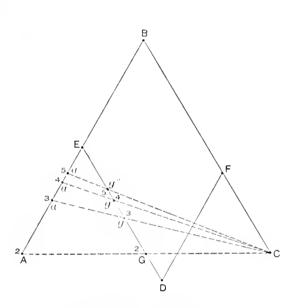


Fig. 1.-Method of Obtaining Points.

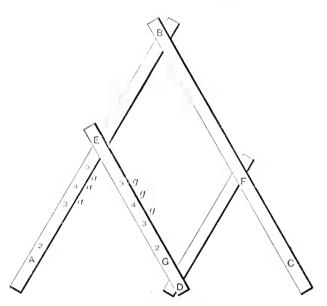


Fig. 2.—The Compteted Instrument.

### CONSTRUCTION OF A PANTOGRAPH.

length. The point upon which I need information most is just where and at what distances to bore the holes.

Answer .- A form of pantograph commonly used is shown in Figs. 1 and 2 In Fig. 1 is shown the principle of construction, by mesns of which it is hoped our correspondent will be enabled to make one of the required dimensions. It is composed of four bars, A B, B C, E D and D F, joined to each other at the points E, B, F and D. These joints have to be made with care, as upon their accuracy depends the success of the instrument. At point C is fixed the tracing point, which can be made of steel or brass. For reducing, the tracing pencil is fitted in the holes in D E. The fulcrum, which can be a flat leaden weight with a brass stem rising out of it, fits in the holes in A E. This weight can have a number of fine points upon the under surface to keep it from moving upon the paper. If desired, the fulcrum can be made of a block of wood secured to the drawing table by means of screws. In this block the brass pin

be the same size as the original, only reversed. If a copy one-third size is desired, the fulcrum must be placed at a and the pencil at g, a g being onethird the distance a C. As the instru ment is generally constructed, the proportion of the bars is of no consequence, providing B F is equal to E D and E B to DF, thus producing a parallelogram. The rule for all proportions less than one-half is as follows: As the distance of the pencil (on E D) from the fulcrum (on A E) is to the distance of the tracer (C) from the fulcrum, so will be the size of the copy to the original.

The diagram shown in Fig. 1 has been constructed in such a manner as to enable one to determine the various points, and for an instrument of any size. Draw any line, as A C, and with A and C as centers, and A C as radius, strike small arcs in the direction of B, thus securing the point B. Draw B C and B A. Bisect A B in E and draw E D parallel with B C. From a convenient point, as D, draw D F parallel

than there are parts in the reduction. One of the divisions set off from E and a line drawn from the point thus obtained to C will give the corresponding point on E D. In all cases the fulcrum, pencil and tracer are to be in line, as indiested by the dotted lines drawn from the points in A E to C. With the fulcrum placed in A E, the pencil in E D and the tracer at C, the drawing will be reduced as indicated by the corresponding figures in A E and D E. With the fulcrum placed in A E, the tracer in E D, and pencil at C, the drawing will be enlarged as indicated by the corresponding figures in A E and D E. In Fig. 2 the four bars of which the instrument is composed are shown in position, the various points being the same as in Fig. 1 and indicated by similar letters.

### Makers of Pinking Machines.

From K. S., New York.—Please inform me through the columns of The Metal Worker who make pinking machines for cutting out facings on over-

coats and fancy work on leather dog collars.

Answer. - Machines of this sort are made, we believe, by C. S. Osborne & Co., Newark, N. J., and also by the Ames Mfg. Company, Chicopee, Mass.

### Cleaning Sink Pipe.

From C. B. G., Bridgeton, N. J.—Will The Metal Worker please tell me what is best to use to clean out sink pipes when they get filled with slime? I think I read some time ago about using potash or chloride of lime.

Answer .- In The Metal Worker, November 25, 1893, we stated that it was a common opinion that the only proper way to clean such a pipe was to open it so that a brush or swab could be used to clear it. Sometimes a strong solution of lye is used. This will get the accumulation loose at the upper end, but is likely to stop up the pipe below. If the pipe then has to be opened for clearing the workman must be careful or the strong lye is likely to burn his hands when the opening is made.

### Stoves and Tin.

From C. T. S., Baltimore, Md. -I am going to write about stoves and tin, for what I have to say will thus attract the attention of a good many of your readers who are in that line of business, but it by no means applicable to their line of business alone. In our section we used to buy a stove that was listed at \$16 and on which we got a 20 per cent. discount, and as we were generous we used to retail it at \$15. Well, for some unknown reason the stove founders concluded they would do a little better by us, and they gave us a 25 per cent. discount. Then the news got out that stoves had come down, and the busybodies went around pricing, and as we had concluded to keep that little drop to ourselves they found prices were just the same. Some of the dealers could not stand this pricing and pricing and no sales, so they admitted that stoves had come down and sold the stove at \$14. I went and asked one fellow why he came down.
He said he had to; that people knew there had been a drop and they wouldn't pay the price. Then I asked him why he had come down in his price more than the stove had, and the chump was too dumb to figure what 5 per cent reduction meant, and hadn't bought a stove or got a bill since the change in discount and didn't know that it only amounted to 80 cents. Well, all the other fellows came down, and some went a little better, till the stove sold for \$12 50 with pipe, delivered and put up. Then everybody tried to get the exclusive sale for some similar stove and sell it at a higher price, but the people wanted the other stove, and finally the trade growled that there was no money in stoves, anyhow, so they wouldn't keep any of the \$12.50 brand in stock.

Now you would think that the trade would have learned their lesson from this, but they hadn't, for when the foundries got to cutting each other to meet the demands that grew out of the first reduction they all concluded to sell at 30 per cent, and stop the cutting that was shifting the trade from one foundry to another. Everybody was happy when they heard of the 5 per cent. reduction, but it makes me so mad when I think of how the whole thing | was gone through with again that I shall not describe the second experience which was as bad as the first.

Now the tin dealers are facing music that they won't like to hear. You see when McKinley made the tariff \$2 or thereabouts on a box of tin they put the price up, and the fellow who was buying big lots for making tinware commenced to fret, and gradually the price got down somewhere near the old figure again. Now if Wilson cuts McKinley's tariff in two, why the buyer will want that \$1 a box right away, and as he has had \$1 already there is a picnic abead. The manufacturer won't lower the price of his tinware if he can help it, but he'll have to, as there will be a fine old noise if he don't, for the public will know all that happens and will demand that prices come down. So what is he going to do about it?

### Suburban Plumbing.

From A. P., New York State.-I would like to have some information on setting water closets. I notice openings for two connections on the closets at the back. I suppose the lower opening is to receive the flushing pipe from the tank above and the upper opening is for connecting a pipe to ventilate the closet. Is this supposition correct? Should the supply pipe to the flush tank be taken as a branch from the main water supply pipe which runs across the cellar and then run up and connect with the under side of the tank? The range boiler and system are to be supplied from a 20-barrel tank in the attic. How shall I connect the outlet from the closet to cesspool? I wish to use a 4-inch lead S-trap directly beneath the closet and run the pipe to the cesspool, using 4-inch vitrified sewer pipe. Should a trap also be placed on the line of pipe to the cess-

Note.-The information sought is usually gained in practice with an experienced plumber as instructor, and only secured after a long service; consequently it is difficult to furnish an answer that will be entirely satisfactory. It will be of advantage to our correspondent to visit some water closet in operation and closely examine all of the details of its connections. The upper opening that he mentions is usually for the flushing pipe and leads into the flushing rim of the closet and provides for scouring every part of the bowl. The lower opening is for ventilation and to protect the water seal of the closet from being destroyed by siphonage. As the flush tank can in no way contaminate the water supply, a branch from the main may be run to it from the most convenient point, using a ball cock to control the supply. The tank in the attic, if kept supplied, will be all that is necessary for the system. The lead S-trap should be connected with a cast iron soil pipe of at least medium weight, which should run through the roof and through the cellar wall, after which it may be connected with a vitrified plpc, providing it is laid on a good foundation and the joints securely made. A trap should be placed on the pipe just before it enters | for refrigerators in New Zealand.

the cesspool, and a fresh air inlet should be placed on the pipe near the trap, but on the side away from the cesspool. The cesspool is the least desirable feature of the system and should be avoided if possible to connect with a sewer. The use of a tank suggests that there may be wells near by which may be polluted by the liquid filtering from the cesspool. The cesspool should be located as far as possible from all buildings and be frequently cleaned.

#### Underground Temperature.

At the meeting of the British Association a report was presented by the Committee on Underground Tempera-The nineteenth report contained the results of observations taken in 1891, by Mr. Hallock of the Smithsonian Institution, at depths extending to 4462 feet in a nearly dry well at Wheeling, Va. When the observations of ing, Va. When the observations of 1891 were finished, an oak plug was driven into the top of the casing to protect the hole. In July, 1893, the plug was withdrawn, and the well, instead of being dry as before, was found to be full of fresh water to within 40 feet of the top. This water was believed to have leaked in at the lower and of the invergence could at 1570. end of the innermost casing, at 1570 feet below the surface. By means of inverted Negretti maximum thermometers, protected against pressure by stout glass tubes, careful observationa were taken at various depths from 1586 feet to 3196 feet, two thermometers being employed to check one another at each depth. The results were prac-tically identical with those obtained two years previously, when the well was full of air, the greatest certain difference being only one-fifth of a degree. The temperatures at 103 feet, 206 feet and 300 feet were also observed with suitable thermometers, the temperature at 103 feet being 52.53°, which is 1.2° higher than the true temperature of the soil at that depth, as determined by other observations in the immediate neighborhood.

A Washington dispatch gives a review of some of the changes in the condition of the Treasury for a year or more which presents some points of interest. It is shown, for example, that while the Treasury cash balance, in-cluding the gold reserve, decreased from about \$129,000,000 on January 1, 1893, to about \$90,000,000 on January 1, 1894, it increased to \$119,000,000 on August 1, 1894. The fact that an increase appears on the latter date is, of course, due to the proceeds of the bond issue, which were covered into the Treasury early in the year. The expenditures have exceeded the receipts of the Government in every month since the beginning of 1893, with the exceptlon of March, May and June, 1893, and June, 1894; and while the excess of receipts over expenditures has been small, the excess of expenditures over receipts has, on the other hand, been

Austria has been making considerable strides of late years in the manufacture of tinware, with which her factories supply the countries of Eastern Europe to a large extent.

There is a large and growing demand

## STEAM AND HOT WATER.

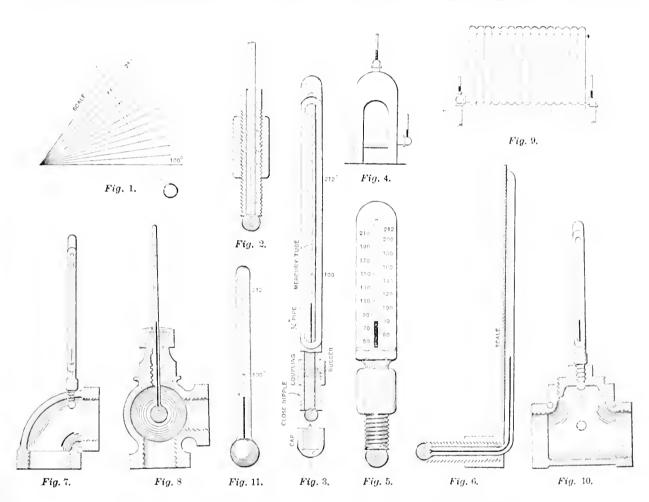
Home Made Thermometer for Hot Water Heating Apparatus.

BY J. L. BIXBY, JR.

Secure from a dealer one or more mercury thermometers, such as come in japanned cases and retail at 25 or 30 cents, or higher priced ones if accurate results are required or desired. As these thermometers vary greatly in length the longer ones should be chosen, for a reason that will be obvious from

The 100° mark should have a cross or something to distinguish it at a glance and to facilitate reading and placing of universal scale. This scale is made, as shown in Fig. 1, by marking from a given point a lot of radial lines an equal distance apart, each space representing five or ten points. Calling the base line 100°, and each space 5°. the twenty-second line would represent 210°, and a distance of two-fiths of a space between this line and the twenty-third line would be the 212°, or boil-

This will save considerable trouble, cost the least and maintain accurate results. Having the tubes, the casings are made of common brass pipe and fittings, or iron for that matter, except that it is subject to rust. The construction of the case is better illustrated than described. Fig. 11 represents the tube. Fig. 3, A and C, represents a tube incased in one-eighth brass pipe, a coupling and close nipple, with a pin of pure rubber that fits the tube tightly and is expanded against both the tube and



HOME MADE THERMOMETER FOR HOT WATER HEATING APPARATUS.

what follows. Having secured the thermometer, remove from the case the scale and tube. This done, mark on the glass tube with a file or diamond point every five or ten points from 80° or 90° up, also the 212° point, all corresponding to the divisions on the scale. In each five-point mark put on a little black ink, and on the ten-point marks put red ink, or vice versa. If the thermometers are to he used on eighth pipe or in air cock holes, the bulb of the thermometer should not exceed  $f_5$  inch in diameter. One of the principal objects in marking the 212°, or boiling point, is to use it as a data point on which the scale is based. The 212° and 210° marks coming so near together they are easily distinguished.

ing point. If each space equaled 10°, one fifth the distance between the eleventh and twelfth line would be the 212° point.

Having made the scale as described, its use is as follows: The base line is put under the 100° mark, and the 212° line under the 212° point. The intermediate points can be read from this scale, which can be made to read single degrees if desired. It is well to make the scale on light cardboard and cut it out in the triangular shape in which it is drawn. If more than two or three thermometers are to be made, it will be well to order them direct from the manufacturers, advising them for what purpose they are to be used, the size desired, and have them scale the tubes.

coupling by acrewing down the casing. The cap C is made of a coupling with the end plugged and the whole filed off round. The top of the casing is finished in a similar manner.

Having found the length of pipe to be used for the case, remove the tube and file or cut away about one-half of the pipe so as to show the thermometer, as illustrated in the engravings. The thermometer, Fig. 2, is practically the same as the one above mentioned, except that it has no casing. Fig. 5 shows the scale that came with thermometer, bent at right angle and soldered on a plug of one-eighth size, or a bushing of one-quarter size. With this thermometer be sure the packing is tight before the scale is set. Fig. 6 is a tube

bent at right angle and scale soldered on to coupling. Fig. 7 shows the application of the thermometer to an elbow. Fig. 10 shows by dotted lines the correct position of the bulb. It should never be placed as indicated by the cut, as this span is generally an air chamber, and water flowing through the fittings would not touch the bulb. Fig. 8 shows the application of the sealed tube for testing water in valves, a large, thick rubber washer being used in the stutling box. Fig. 9 shows the application of the thermometers to testing hot water radiators, and Fig. 4 their application to a boiler.

### The American Air Valve.

The accompanying illustrations, Figs. 1 and 2, show respectively general and sectional views of the American positive



The American Air Valve.-Fig. 1,-General View of Valve.

and automatic air valve manufactured by Pierce, Butler & Pierce Mig. Company, Syracuse, N. Y. The device can be used as either an automatic or positive valve without any change whatever of adjustment. Attention is called to the manner in which the expansive valve stem is automatically mounted in the positive valve operating piece. It is evident that the socket of the operating piece is of sufficient depth to keep the expansible valve stem in perfect alignment with the valve seat, and owing to the bearing face which forms the inner

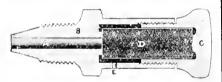


Fig. 2.—Sectional View of Valve.

wall of this socket the expansible valve stem may be adjusted lengthwise without turning on the valve seat. feature is referred to as of special advantage, as when the valve seat is incrusted with grit, rust or other hard substances the expansible valve stem can be brought with great force against the valve seat without injury to either. In the American the expansible valve stem is formed of a specially prepared composition manufactured, we understand, expressly for this use, so that when the valve cools and this stem contracts it allows the admission of air into the radiator and prevents the formation of a vacuum.

### Pressure Regulator and Returning Condensation.

From F. B., Massena Springs, N.Y. I would like some information on the use of a pressure regulator or reducer on a one pipe steam heating plant. Will the condensation return to the boiler by gravity where one is used? claim it will not, as the pressure on the

ence in hight between the water line in boiler and the lowest radiator is 5 feet. The boiler will carry a pressure of 40 pounds for power work, and only 4 or 5 pounds will be carried on the heating system for the house.

Answer. - If the regulator is to be used on a strictly one pipe system and the water of condensation is to be returned to the boiler through the steam main leading from the top of it, the regulator will prevent the water from returning, just the same as a stop cock would. If the cheek mentioned is a valve placed in a pipe sometimes used on a modified one pipe system, which receives the re turn water and carries it to the boiler below the water line, the water could not be returned for another reason. In such an arrangement of piping whatever pressure was carried on the beiler would be exerted on the boiler side of the check valve; and as a much less pressure would be exerted on the other side, the water could not pass through. If the check valve was renewed back pressure would drive the water out of the boiler up the return pipe. If, instead of the return pipe being connected with the boiler, it is connected to any one of several makes of intercepting steam traps, set according to the pressure carried, the condensation will return to the trap. When the trap is full it will trip and discharge either into a waste pipe and run off or into a drip tank or hot well, from which it can be pumped into the boiler. There are return steam traps which receive the returned condensation, and when full, trip, opening a valve which lets high pressure steam enter. This closes a valve on the return pipe and opens a check valve on the pipe to the boiler; when the pressure being equal, both above and below the water in the trap, the water drops by gravity into the boiler. The trap then closes the high pressure steam valve and continues to receive the returned condensation.

### HEATING NOTES.

J. LELAND WELLS, chairman of the Executive Cammittee of the Master Steam and Hot Water Fitters' Association of the United States, is in receipt of the following letter from D. M. Nesbit, written from London, August 13: "It gives me great pleasure to acknowledge your letter of July 20, which conveys to me the news that the Master Steam and Hot Water Fitters' Association of the United States have thought fit to elect me an bonorary member (the first honorary member, I believe,) of your association. Words fail me to express in adequate terms my appreciation of the great honors your body has conferred on me. My visit to the States this summer, the making of so many dear and kind friends on the other side of the Atlan tic, coupled with the distinction I have alluded to, will be ever fresh in my memory, and, as I stated at the convention, a 'red letter day in my csreer as a heating and ventilating engineer.' Please convey to the association my best thanks for the distinction conboller side of the check is not the same as it is on the radistor side? The differ-ferred upon me, and I shall always be

glad to render what service I can to your association."

JAMES K. PEACOCK, one of the tcurists of the J. II. McClain Company, Canton, Ohio, is entertaining the plumbers and steam fitters who call at 69 Centre street. the New York office, while Manager D. R. McCallum is taking a vacation with his family in Canada. The factory is running overtime, turning out steam, hot water and hot air heating apparatus, and their line has been favoraby received by the trade near the New York effice.

THE New Haven Weekly Record reports that an addition will be built to the foundry of the Wm. II. Page Boiler Company, on Franklin street, Norwich. Conn.

T. C. Joy & Co., Titusville, Pa., are just issuing a circular of their Orient radiator that they are now making in all the usual hights, 24, 31, 39 and 45 inches. A table gives the dimensions and surface and instructions for ordering for steam and hot water. The popularity of the radiator made it necessary to manufacture the additional sizes.

LEBOSQUET BROS, Boston, Mass., manufacturers of steam and hot water heaters, have removed from 82 Union street to 89 the same street, which is almost directly opposite their former location. W. D. Hoisington, who has been connected with this concern for the past nine years, has succeeded W. F. Gilling as manager.

WE HAVE RECEIVED another scarlet bound pamphlet descriptive and illustrative of the Richmond steam and hot water heaters, which has been issued in the interest of E. H. Randall & Co., Concerd, N. H. A special feature of this publication are the final pages, which present views of residences in the special control of the second control of the secon Concord and vicinity which have been heated by the Richmond boilers. A list of references and testimonial letters trom that neighborhood is also presented.

UNITED STATES HEATER COMPANY, 113 Randolph street, Detroit, Mich., distribute an exceptionally neat little pamphlet entitled "When Folks Are at Home." That is the outside inscription, and within the four pages continue the story by saying that their rooms are kept comfortable and healthful by hot water heaters. The advantages of this style of warming are dwelt upon briefly, and particularly is attention given to church warming. At the close the United States Heater Company say that they will be glad to send book of special information on this tople.

PENN ENGINEERING COMPANY, 312 Cherry street, Philadelphia, issue an illustrated circular and price-list relating to Hanna's ball joint pipe hanger of their manufacture. The hanger is made entirely of malleable iron and the different forms are illustrated in the there being three different circular. styles made in 12 sizes from 1 inch to 6 inches. Accompanying the circular is a fac-simile of a letter written to the Penn Engineering Company by William J. Baldwin of this city, the well-known heating expert, in which he expresses his high appreciation of the hanger.

J. S. GLENN, proprietor of the Glenn valve manufactory, 115 Fremont street and 110 East Indiana street, Chicago, has just issued illustrated circulars calling attention to his special extra heavy globe valve and special extra heavy angle and check valve. This globe

valve is designed to meet the requirements of durability and tightness, and is, therefore, adapted to hard service. It is made entirely of brass or bronze, except the handle, and from 4 inch to 4 inches, inclusive. The thickness of metal in body, diaphragm and seat of the 1 inch valve is 1 inch The thickness of metal outside of pipe connection is \$ inch. Larger sizes are correspondingly heavier. The disk or valve is made \(\frac{1}{2}\) inch larger in diameter than the opening in the seat. It is east solid with the stem, which has four threads to the inch to allow quick opening and to the inch, to allow quick opening and closing. The handle has four lugs, exclosing. The handle has four lugs, extending downward toward the valve, to allow the use of a lever in tightening or loosening it, the atem being made strong enough to stand the leverage. The thread where the cap or bonnet screws in the body of the valve has eight threads to the inch, the coarseness of the thread being adopted to secure greater strength, and also to make it impossible for threads to cross when starting to screw on. The same features apply to the angle and check valve.

AT ONE OF THE PREVIOUS MEETINGS held to consider the formation of a so-

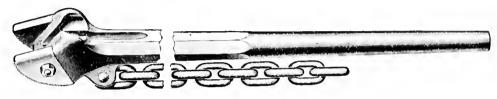
the company are W. L. Shephard, Chas. W. Hills, P. S. Barnes, John W. Crane, George V. Brickley, A. H. Matatall and Morton Belden. The officers are as follows: President, Chas. W. Hills: vice president and general manager, P. S. Barnes; secretary and treasurer, Morton Belden.

Among the prominent steam fitters who have recently called at the Chicago office of the American Boiler Company can be mentioned the following: Dunning Bros., Menominee, Mich., and W. W. Murphy, Peoria, Mich.

#### Trimo Giant Pipe Wrench.

The accompanying cut represents a wrench put on the market by the Trimont Mfg. Company, Roxbury, Mass. The wrench is described as having a solid forged head, with detachable interchangeable gripping jawa made from a fine quality of tool steel, and the chain used as being the best quality of cable chain. It is explained that the head is made so that the chain is held securely, without danger of fall-

capacity of from 400 to 500 horse-power. All of the waste steam is used in drying the product of the company, the exhanst being circulated through large coils and air is driven through these coils and into the dry ovens. In the manufacture of Indurated Fiber Ware hydraulic pressure is largely used, and to generate this pressure the company have a Worthington steam pump of a capacity of 1,000,000 gallons daily. In addition to this they have two smaller power pumps of a capacity of 250,000 gallons. The hydraulic pressure is kept up to from 150 to 200 pounds. The plant throughout is of what is known as "mill construction" and the apparatus for protection against fire is most complete and will be of interest. In addition to the water supply referred to above, an auxiliary pump, which is used exclusively for fire protection, is stationed in the engine room. This pump has a capacity of 800,000 gallons and connects not only with the city water mains, which at this point give a pressure of 125 pounds, but may also be readily connected with two tanks for auxiliary fire protection, holding 100,000 gallons. The entire plant is sprinkled, the equipment comprising something like 2000 sprinklers. Scat-



Trimo Giant Pipe Wrench.

ciety of heating and ventilating engineers, a committee on organization was selected, composed of Fred Smith, A. Carey, James A. Harding, W. M. Carey, James A. Harding, W. M. Mackay and Hugh J. Barron. This committee was instructed to consider and report some method of grading membership, as well as other matters pertaining to the establishment of an association of such engineers. The object has been considered a worthy one, and the committee have taken such steps that a meeting will be called for September 10 to effect a permanent organization of the Society of Heating and Ventilating Engineers. Men following this profession throughout the United States will be present, as the desirability of such a society has been generally conceded, and a lively interest taken in its formation which is intended to be on a high plane, worthy of such an important branch of work.

The Dugan Bros Plumbing & Heating Company of Salem, Ore., have recently completed what is claimed to be the largest hot water heating plant in the Northwest. It was installed in the Oregon State Reform School, and has been turned over to the trustees who have made their inspection and accepted it. Two horizontal steel boilers, made by the Kewanee Boiler Company, Kewanee, Ill., which feed an 8-inch flow main, and at 120° it is reported that a perfect circulation is secured; radiators at a distance of 270 feet from the boilers showing little difference in temperature from those located nearer.

THE NEW JOINT STOCK COMPANY in Elmwood, Conn., which has been incorporated recently, is called the American House Heater Company, and has a capital atock of \$100,000. The company's factory will be erected just south of the factory of the Whitlock Coil Pipe Company. The directors of

ing out; and that it still can be readily released at the will of the operator. The tool is designed for all kinds of work as well as hard and rough usage, and with its use the makers claim that there is no alipping, no locking and no lost motion. The wrench is made in six sizes, to take pipe from 4 inch to 16 inches, with handles from 27 inches to 84 inches in length.

### The United Indurated Fiber Company's New Works.

Our readers will remember that in July, 1893, the plant of the United Indurated Fiber Company of Lock-port, N. Y., was completely de-stroyed by fire. Immediately after the fire a new location covering some 14 acres was purchased, adjoining the old plant, and the work of rebuilding was immediately gotten under way, plans being laid for a plant which should be sufficient for the growing demands for Indurated Fiber Ware. The buildings are entirely built of stone, and, with the exception of two of the 13 buildings, are all one-story, and are so arranged that the product is passed from one to the other as it goes through the different processes, thus reducing the hand-ling to a minimum. Each department or process is in a different building, and the buildings are so arranged that with any possible increase of demand extensions can be made in each department. The company utilize in their pulp mill about 1000 horse-power, which they derive from the overflow of the Eric Canal at this point and which is known as the 18-Mile Creek. In addition to this water power the company have a steam plant, comprising a Corliss engine, 250 horse power; one Poppet valve engine. 175 horse power ; one Armington & Sims, 75 horse-power, for the electric light plant, and two smaller engines of 50 horse-power. The company's boiler plant is of a

tered around the works are ten outdoor hydrants, each fitted with a length of hose, and the company have a hose cart and extra hose on the grounds. Located in different points throughout the building there are 24 indoor hydrants with hose attached. The buildings cover in the neighborhood of 5 acres of ground. The company employ from 250 to 300 hands and turn out 1000 dozen articles of the various shapes and sizes mannfactured in their ware per day. The description of this extensive plant will be of interest as showing the developments of this line of mannfacture, which promises much for the future. The new line of goods to which the attention of the trade has been lately called — namely. Wash Basins and similar goods—will, it is believed, have a decided effect upon the trade in these lines. In spite of the depression of the last year the company report that they have been able to keep the works running full since they started in January last, and in some of their lines there has been a decided increase in the demand, while there has been no falling off in the demand for their staple goods. The officers of the company are Jesse Peterson, president; Heury G. Cordley, secretary: James E. Hayes, treasurer: Charles E. Folger, assistant treasurer: Cordley & Hayes of 172 Duane street, New York, represent the line in the East; the Indurated Fiber Ware Company of 55 Wabash avenue, Chicago, representing the company in the West.

The new Southern Railway Company, who on August 1 commenced business as successors to the Richmond & Danville and East Tennessee, Virginia & Georgia railways and their allied lines, will operate in all some 7000 miles of roads. Starting under strong and able management the new system promises to be of great advantage to the people of the South.

# TIN PLATES.

### The Ups and Downs of Tin Plates.

Under the above title the Bulletin of the American Iron and Steel Association gives the following interesting particulars in regard to the fluctuations in the tin plate tariff of the United States

during the last 50 years:

Prior to the civil war the duty on tin plates, whether they were specially named or not, was always a low ad valorem rate, for revenue only. Rob ert J. Walker's tariff of 1846 made the duty 15 per cent. This was the highest rate that had previously been imposed. Tin plates were not then made in this country. In the James Guthrie revenue tariff of 1857 the duty on tin plates was reduced to 8 per cent. The revenue duty of 15 per cent., existing from 1846 to 1857, had entirely failed to develop a tin plate industry of any di-mensions whatever, and of course the lower duty of 8 per cent. could not ac-complish what a higher rate had failed to do.

In the first of the so called war tariffs, the Morrill tariff of March 2, 1861, the tin plate duty of 8 per cent. was increased to 10 per cent., revenue only being still contemplated. The tariff of July 14, 1862, still further increased the

duty on tin plates to 25 per cent.

It has been contended that by various tariff acts during the war period, culminating with the act of June 30, 1864, it was the intention of Congress to impose a specific duty on tin plates of, first, 2 and then 21 cents per pound, and that this intention was frustrated by a decision of Secretary Fesaenden, dated July 22, 1864, who ruled that it was the intention of Congress to make tin plates subject to a duty of only 25

per cent.

The duty on tin plates, as interpreted by Secretary Fessenden, continued to be 25 per cent. until 1872, when it was reduced in the Dawes bill to 15 per cent. In 1875 the duty was made specific at 1.1 cents per pound, and in 1883 this duty was reduced to 1 cent. per pound, which rate remained in force until the passage of the McKinley tariff of 1890, when it was increased to 2.2 cents per pound, to take effect July 1, 1891. The new tariff reduces the duty to 1.2 cents per pound, to take effect October 1, 1894.

The McKinley tariff imposed a duty of 4 cents per pound on block tin; the new tariff puts block tin in the free list. We observe that foreign dealers have just put up the price of block tin, so that the repeal of the duty may not benefit our manufacturers.

We owe the rate of duty on tin plates in the McKinley tariff—namely, 2.2 cents per pound—to a suggestion of the Tariff Commission of 1882. This is the rate recommended by the commission, but the Republican Congress of that day had not the courage to accept it, but in the tariff act of 1883 it actually reduced the previous rate of 1.1 cents per pound to 1 cent per pound. The New York Tribune opposed the increase recommended by the Tarlff Commisaio n.

The new tariff will make the dipping of tin plates in this country from imof the places in this country from imported black plates exceedingly difficult. On cold rolled, smoothed, pickled, and cleaned sheets of 25 gauge and less the duty provided is 1.1 cents per pound plus + cent, or 1.221 cents in all; between 20 and 25 wire gauge the duty is 0.921 cent per pound. these rates will operate as a check upon the importation of black plates for tinning purposes they ought to correspondingly atimulate the production of domestic black plates.

The new tariff bears very heavily upon our galvanized sheet industry. It provides a duty on galvanized sheets of } cent per pound additional to that imposed on black sheets, whereas the McKinley tariff provided an additional

duty of 4 cent per pound.

### Record Mfg. Company's Annual Picnic.

The first annual picnic of the employees of the Record Mfg. Company, Conneaut, Ohio, on Wednesday, August 22, was the occasion of a very pleasant display of the sympathy and good feeling which exist between the firm and their work people. Over 400 guests were conveyed to the exposition grounds at Conneaut Lake, where a substantial repast was provided for them, after which boating, dancing, racing and various forms of amusement were en-

joyed to the fullest extent.

In the course of the afternoon the guests gathered in the auditorium to listen to an address of welcome and friendly counsel by Mr. Record to his "family," as he happily termed his employees, in which he assured them of the fatherly interest and regard in which he held each member. Speaking of his ideal of the relations of employers and employed, Mr. Record said he believed one of the best things that can be done is a meeting such as that they were then enjoying, where, by association, they could come into friendly touch with one another and learn to under-stand and appreciate one another's char-acters and conditions. "I believe," acters and conditions. "I believe," said he, "there are ofttimes too high barriers between the employer and employees, and each is too apt to look at his own side of the question regardless of the other, and thus create almost insurmountable antagonisms, when in fact they are indispensable to each other. Each has rights of his own, but their welfare is identical and should be harmonized.'

Speaking, further, of his own relations with his work people, Mr. Record remarked as follows: "It has always heen my aim to look to the welfare of those in my employ, and I have often, in my own mind, placed myself in their positions and then asked the question what I would desire if I were thus situated. It has also been my desire to atimulate those in my employ to personal advancement by increasing their facilities. Their advancement is always based on competency, ability and will-inguess of application. Those who have heen owners of large factories know

well the struggle the employer has had to contend with. It is customary with a great many, when competition is sharp and cuts off the profits, to largely reduce the cost of labor; but it has been my rule in such cases to devise appliances that I could place in the hands of my employees to render their labor more effective and more productive, and thus overcome the obstacles without reducing the wages of any. It has ofttimes seemed dark and foreboding, but Providence has given me so far an insight into mechanical science as to enable me to pursue this course."

The address was warmly received by

the auditors, and was followed by a very gratifying expression of the esteem in which Mr. Record is held by his em-ployees, in the presentation to him of an elegant chair in commemoration of his fifty-fifth birthday. It is intended that the "Record picnic" shall be a

regular annual event.

### SCRAP.

WE ARE ADVISED that "Merry's Old Method" roofing plates, to the extent of several hundred boxes, were selected in an open competition for the new "Cosmopolitan" Library, now being completed at Irvington-on-Hudson. The "Cosmopolitan" Library, on which no expense has been spared, will be one of the finest publishing houses in the country, and the selection of their special broad of themse with the selection of their special broad of themse with the selection of their special broad of themse with the selection of their special broad of themse with the selection of their special broad of themse with the selection of their special broad of themse with the selection of their special broad of themse with the selection of their special broad of themse with the selection of the s cial brand of terne plate for this building is highly gratifying to Merry & Clark, 535-547 West Fifteenth street, New York, the sole importers and owners of this well-known roofing plate.

THE QUESTION of what will be the future policy of the existing American tin plate works under the new tariff conditions is one which has been much canvassed in the trade. To inform their customers on this head, so far as regards their own works the American Tin their own works, the American Tin Plate Company of Elwood, Ind., one of the largest and most successful concerns in the business, have issued a circular letter under date of August 21 in the

following terms:

"We have received quite a number of letters from our customers asking whether, after the duty is changed on tin plate, they can still depend on our operating our mill and getting a supply from us. In reply would state that we are in the business to stay, and that we shall run full capacity right along, regardless of change in tariff, and propose to meet all legitimate competition, both foreign and American, quality con-sidered. Our present canacity is nine sheet mills and product 6000 to 7000 boxes per week."

THE MONONOAHELA TIN PLATE COM-PANY of Pittsburgh have been granted a charter of incorporation, with a capital stock of \$5000. The incorporatora are H. W. Mitchel, Wm. Montgomery, of Pittsburgh, Wm. A. Dodge and Chas. F. Palmer of Allegheny, Pa.

UNDETERRED by the prospective alterations in tin plate conditions, on account of the new tariff law, Meurer

Bros. Company, 575-577 Flushing avenue, Brooklyn, continue to run their tin plate works full time with all six tinning pots and intend doing so in-definitely. The firm have a large and steady demand for their guaranteed roofing plates and are of the opinion that they will be able to make these plates and dispose of them with profit, even under the adverse conditions which have forced the smaller dipping establishments to close down. contemplate, and are making preparations for, the installment of four additional tinning machines and other tin plate machinery, including a steam pickler, with the view of largely in-creasing their output. Messrs. Meurer report an excellent business during the past month in all the lines of sheet iron and metals which they handle, August's sales being 40 per cent, larger than those of any previous month in the past

PHILADELPHIA ADVICES indicate that the tin plate manufacturers in that city generally are not alarmed at the situa-tion at all. They say the demand for high grade American plates is so thoroughly established that they can hold the trade against foreign competition. Prices of black plates must come down to meet the emergency, and so must labor, and with such adjustments as will doubtless be made they profess to have no fears of the ultimate outcome.

Among the tin plate manufacturing establishments in this vicinity which have closed down owing to the new Tariff are those of A. A. Thomson & Co., Kahn Bros. and George W. Jaques in New York City, and Sanders, Fielding & Bond in Jersey City.

A NEW BRAND of American roofing terne, named "Cort's Old Style," has just been placed on the market by Mortimer H. Cort, 9 Burling slip, New York City, for whom it is exclusively manufactured. The plate, as its name indicates, is an old style, heavily coated terne, and is claimed to carry 30 pounds of coating to the box of IC, 20 x 28. It is specially recommended for those requiring a high-grade roofing plate.

THE TIN PLATE WORKS of Merchant & Co., Incorporated, of Philadelphia are reported to be running full, night and day, to fill orders for the firm's special brands of roofing plates, for which the demand is wide and growing. Messrs. Merchant's New York and Brooklyn sgencies advise us that these roofing plates are gaining great head-way in this vicinity, Merchant's Roof-ing being specially in request for the better class of buildings in New York State and New England. The firm's tln plate works will continue in active operation despite the change in tariff, special attention being devoted to their guaranteed brands of terne-namely, Merchant's Old Method, Merchant's Roofing, Alaska and Special Extra

THE AMERICAN TIN PLATE MACRINE & Mfg. Company, Linfield, Pa., have just added a second Buckman tinning machine to their plant, by means of which their output of continuous roofing tin will be doubled, giving a capacity of about 20 tons a day. Mr. Buckman, the inventor of the machine, who is superintendent of the Linfield Works, expects to have the new machinery in running order next week.

THERE has been a talk among the trade this week of a decision by the directors of the Duquesne Tin Plate Works, Pittsburgh, Pa., to expend a large sum of money-\$150,000 was mentioned-in immediate work in extencions to their plant.

MERCHANT & Co., Incorporated, Philadelphia, issue an attractive circular relating to their Continuous Roofing Tin, which is sold under the name of Tandem. The name of the tin is put to good use in the illustration that heads the card, it being a two-wheeled vehicle loaded with a roll of this tin and drawn by two horses driven tandem by a brownie. The advantages of this style of roofing are alluded to in the text.

THE NEW TINNING DEPARTMENT Of the Ætua-Standard Iron & Steel Company, Bridgeport, Ohio, has been in full and successful operation for two months, coating some 300 boxes of plates per day. At present only coke plates are made, namely, "Etna" bright tin and "Belmont" terne. The product is said to be highly thought of by those who have used it, and the firm have received some very flattering letters in relation to it from their customers. The black plates used are rolled in their own mill.

### European Drainage Systems.

An interesting summary, says the London Plumber and Decorator, is given by a French contemporary of those Continental towns which apply the sewage effluent for agricultural purposes on a more or less extensive scale, from which it appears that the practice is not quite so modern an invention as some might suppose. For instance, in Italy the towns of Florence, Novara and Milan have made use of this auxiliary in husbandry for centuries. While in China, fount of ancient science, the value for husbandry of human ordure has been recognized for ages. More modern examples are sfforded by Switzerland, where Fribourg and Lausanne, and Belgium, where the capital, Brussels, are adherents of the water borne and sewage farm system. The modern development of the drainage net-work of Berlin, combined with ag-ricultural treatment, is one of the most extensive and complete. The German capital is divided into 12 basins, each served by an elevating machine which raises the sewage to the hight necessary to divert it by gravitation to the respective sewage farm areas, situated from 8 to 10 miles from the town.

At Danizig also the sewage is made use of in agriculture, instead of being

discharged into the sea.

Other German towns and places utilizing sewage in agriculture are Frank-Munich, the whole of the province of Wurtemberg and the asylums at Dalldorf, near Berlin, Marburg (Hesse), Verneck, Nietleben, near Halle (Sax-ony), Langerich (Westphalia), Osna-bruck in Hanover and Königsluther in Brunswick.

In Hungary the capital, Pesth, utilizes its sewage agriculturally.

In Russia, Odessa does the like.
In Spain, Valentia and Madrid follow suit; and in classical Grecce, the capital, Athens, is an adherent of the

In France, as elsewhere, many towns, in a certain kind of way, are adherents of the agricultural treatment of sewage, in teeming the contents of their water closets into the streams which pass through the towns, which themselves eventually fertilize the neighboring fields; this is the case, more or less artificially, in most of the towns of Normandy, Dreux, Chartres, &c. But of his own work.

St. Etienne and Perpignan carry out an artificially arranged scheme in diverting both their liquid and solid sewage to agricultural purposes. It is also so at Montélimer, where the right to utilize the sewage has been granted to a joint stock company of land owners, treating 70 acres of land. Rheims, after exhaustive experiments, has given up the idea of purifying the sewer water by chemical processes, and is resorting to purlfication by earth. right to utilize the sewage has been conceded to a company, and 375 acres are to be treated. The towns of Cannes, Nice and Havre are following suit with the preliminary works. In 1886, following the report of Dr. Brouardy and Engineer Bonnegall, the municipal authorities of Toulon decided to establish a network of ventilated sewcrage, capable of receiving all the sewage of the town and to transport it to the southwest side, to be employed there in agricult-At Poitiers the town council have just decided to construct a network of sewers answering to all requirements, and 150 acres of land have been set apart as a sewage farm.

At Versailles the system is in partial employ, and it is also used at the following institutions: School at Vallepreux, the madhouse at Vaucluse, the hospices of Saint Brice at Chartres, &c. Lille, Mézières, Lorient use no other manure than sewage in their neighborhoods, while Lyons and Bordcaux devote a portion of their sewage to this purpose. Judged by its numerous adherents, the utilization of sewage for agriculture seems to have vidicated its

expediency.

New York wool importers are preparing to make their city the great wool center of the country, now that free wool is in sight. With this end in view the New York Woo! Warehouse Company are beginning the construction of a big building, at West Broad-way and Beach street, for the housing of wool, a wool exchange, a wool bank, and a wool club. The New York Wool Exchange is now being organized, as well as the New York Wool Club, both of which will soon be in operation. The new building, which will be a handsome structure of 11 stories, is expected to be ready for use by next February.

The statement of the "Sault" Canal for the past year, recently issued, shows that the business of this season has been 5,096,033 tons, being 17,000 tons less than that of last year. In July the total freight tonnage was 1,637,618, against 2,017,000 tons in July of the previous year, the latter having been the heaviest month's business known in the history of the canal. The greatest increase this year has been in ore, of which 3,077,000 tons have been carried, as compared with 1,928,000 tons last year, while the main decrease is shown in coal and wheat, which have fallen off 60 and 50 per cent, respectively. Lumber to the extent of 326,000,000 feet has passed this sesson, being 77,000,000 feet more than the figures of last year.

B. Petropavlosky, one of the engineers in charge of the construction of the great trans-Siberian railroad, has arrived in San Francisco on his way to Russia to report on the progress of that undertaking. He will examine the railroad systems of the United States and Europe on the way, in order to gain useful information for the benefit

## PLUMBING and GAS FITTING.

### Union County, N.J., Plumbers to Organize.

State Vice-President John Hickman of New Jersey is sending the following letter to the plumbers of Union County with a view to forming a master plumbers' association:

We have for some time past seen the necessity for the organization of our craft in this State, in order to give us the protection that other organized cities receive, and also to bring our trade together in closer bonds of good fellowship and harmony. To accomplish this end we need the co operation of every master plumber in this county.

We have accordingly set apart the evening of September 5 for a meeting at Young Men's Association Hall, situated on Rahway avenue, Elizabeth, at 8 p.m., of the plumbers of Union County, N. J. There will be several speakers, including President John Mitchell of the National Association of Maater Plumbers, Henry G. Gabay and Samuel Malcolm of New York, and Alexander Don of Newark.

We have taken the liberty of using the following gentlemen as committees, and trust they will use their endeavors and influence to bring all the craft: J. S. Whelan, James II. Faulks, Elizabeth; W. B. McNamara, John Carney, David T. Kenney, Plainfield; Geo. Tobin, L. S. Hughes, Summit; S. K. Tombs, Rahway.

We also extend an invitation to the

Board of Health to be present.

We trust you will be on hand in good season on the evening named.

### New York Plumbers' Clam

The Master Plumbers' Association of New York City held its annual clam bake on Thursday, August 23, at Rye Beach, 24 miles from New York City, on the line of the N. Y., N. H. & H. R. R. At nine o'clock eighty master plumbers and their friends met at the Grand Central Station, and one hour and a half afterwards arrived at Beek's Hotel. The genial proprietor had breakfast ready for the guests. The clambake was served at three o'clock.

After breakfast Jos. W. O'Brien and John Yule picked out their nines for a game of baseball. The O'Brien nine accred 18 and the Yule men only made 14 runs. Later a football was kept in motion, the most active "kicker" being John Yule.

A rifle contest was held, the scores being Jno. Renehan and C. H. Cranich-felt, 18; H. J. Pattison, C. S. McKeon and S. G. Collins, 16; Col. Geo. D. Scott, 14; J. F. Corcoran and W. Emmet Crosby, 13; F. Callahan and T. J. McCormack, 12. Sultable prizes were awarded, Executive Clerk Crosby receiving a "nigger" doll baby.

The following are a few of those present: John Mitchell, president National Association; II. J. Pattison, acc retary National Association; II. G. Gabay, John Byrns, Wm. Montgomery, Jos. W. O'Brien, Geo. Krindall, C. Hopker of the Delamater Iron Works,

Jno. Renehan, Geo. B. Brown, I. O. Shumway, Jas. O'Brien, Fidel Ehr-Shumway, Jas. O'Brien, Fidel Ehrhart, Henry Steeger, Geo. Stoltz, J. McCann, Chas. A. Welch, Geo. H. Dunn, F. Flannagan, W. Emmet Crosby, National Executive Clerk; Jno. McCarron, Chas. Schloesser, Paul Euell, John Yule, J. G. Collins, Milton Schnaier, C. Harrison, Col. Geo. D. Scott, Chief Inspector of Plumbing; Louis A. Hornum, Second Deputy Superintendent of Buildings: Francis Callaging. Louis A. Hornum, Second Deputy Super-intendent of Buildings; Francis Calla-han, W Kirchhoff, A. Meixel, C. H. Cranichfelt, Wm. T. McGrady, Jno. Quinn, C. S. McKeon, J. F. Corcoran, P. J. Carpenter, T. J. Mooney, T. F. McCall, I. J. Brown, J. Wright, David McElraeyy, Mr. Tenant of the Health Department; Capt. Ar-noid. Geo. Hackett. Sewer Permit noid, Geo. Hackett, Sewer Permit Clerk; Jas. Neugent, T. J. Toumey, Alex. Bryant, Wm. Lockwood, Clerk of the New York Association; Edw. Murphy, H. M. Bristol, Jas. Gribble, of Dimmock & Fink; Mr. Stewart of The Stewart Ceramic Company; T. Mc-Cormack, Wm. McShane, John A. Murray, manager Henry McShane Manufacturing Company; M. J. McDermott, Jno. Fyfe.

#### TRAPS AND VENTS.

ROBERT WATT, plumber, of Philadelphia, is to erect a four story establishment for his business.

CHARLES P. F. CUSHING is a Tabascoite who represents the Kennedy Valve Mig. Company, 52 and 54 Cliff street, New York. The line of valves are made for steam, water and gas in brass and iron, the brass goods being used in large quantities by the Government. The latest hose hydrant of the house is set up so that the upper part is shown on the sample floor and the lower end already for a water connection is shown in the basement. A new movable disk check valve is one of their latest productions. A specialty is made of sup-plying valves for exceptional require-ments in addition to a large line of unusual but very convenient goods. Their latest high pressure valve, made to stand 300 pounds, is a neat looking

A MAN who has done the plumbing in a new house which he built at Huntington, Ind., is having some trouble to get the water turned on. This, it appears, is the second time he has done the same thing, getting what assistance he needed from an out of town plumber, who, having no license, could not comwith the local ordinances. The local plumbers refuse to come in and inspect the work and assume the responsibility of having the water legally turned on without a fee of \$16, which

THE COLWELL LEAD COMPANY, 63 Centre street, New York, leave none of the demands of the plumber unsatisfied. Lead pipe and sheet lead made on the apot and water closets, brass goods and baths are ready for prompt shipment from their warehouses. They are just sending out circulars of the Helper

fire pot, which is so made that it heats a pot of solder or a pair of coppera, and on removing the hood the flexible burner can be used as a torch to wipe a joint, seam or melt old connections.

AT A RECENT MEETING of the Board of Health of Lynn, Mass., eight master plumbers and 20 journeymen were registered and sworn in under the new

WM. CAMPBELL, formerly with Eston, Cole & Burnham, has opened a plumbers and steamfitters' supply house at 315 West 125th street, New York. He will also do a pipe fitting business and is now installing two Perfeet hot water heaters in the houses of H. McQuade.

LEAD THIEVES were never more numerous than they are now, says a Buffalo, N. Y., daily. Reports of thefts of lend pipe come in daily to the police, and they have been endeavoring to round up the gang of thieves who are pestering the contractors erecting new houses in various parts of the city.

WALTER H. McLAIN & Co., Massillon, Ohio, have purchased the stock of plumbers' material of Capt. S. M. Kuapp and have gone into business in the latter's North Erie street building. They expect to take contracts for all classes of sanitary work, steam and gas fitting.

AT THEIR SESSION at Peoria, Ill., last week, the master plumbers of Illinois drafted a bill to be presented to the next general assembly. In a general way it requires a registration of all plumbers, both masters and journeymen, and ordinances for cities of over 5000 population.

JOHN LEWIS has moved his plumbing shop from under the post office, at Alli-ance, Ohio, to the west room of the A. W. Coates Rake Works.

PARK & McKAY COMPANY, Detroit, Mich., issue catalogues of the Tabasco front outlet water closet. A new catalogue of this concern, which is in the printer's hands, will be ready for distribution September 1. The circulars alluded to show the Tabasco closet in six different styles. The illustrations are finely executed, showing all the features of the apparatus, while particulars are given of its construction. lars are given of its construction and finish. All of the closets are provided with adjustable nickel plated hinged seats.

THE SECRETARY OF STATE of South Carolina has granted a commission to the "Charleston Plumbing Company," which proposes to do a general plumbing and tinning business and to buy and sell hardware, at Charleston, S. C. The sell hardware, at Charleston, S. C. The incorporators are J. C. Baerd, R. T. Baerd and H. A. Halervenue. The capital stock is to be \$5000, divided into 100 shares of \$50 each.

THE FOLDING BATH TUB COMPANY, Marshall, Mich., distribute illustrated circulars relating to the folding bath tub of their manufacture, which they refer to as the aeme of perfection. The latest pattern is a handsome article, and the illustration shows it closed, in which position it looks like a small wardrobe, while at the side the spparatus is open, showing the tub and the heating attachment.

JOHN D. INGALLS, who died last week in Cambridgeport, Mass., was an old and highly respected citizen of Cambridge. He was nearly 70 years of age, and for many years was engaged in the plumbing and pump manufacturing business, having his factory on Harvard street.

THE ALBERENE STOVE COMPANY, 393 Pearl street, New York, are beautifying their showroom by frescoing the walls and ceiling and later will make a fine show of plumbers' stoneware, sinks, laundry tubs, &c., when the work is completed.

THE PLUMBING FIRM OF Wardell & Garrabrant, Orange, N. J., have been dissolved by mutual consent and will be

Tuesday, 70 delegates being present. At noon the local association treated them to a clam bake. The proceedings were carried on in executive session.

SECRETARY CROWELL of the Master Plumbers' Association of Monmouth County, N. J., sends us the following as a correct list of their officers: President, Samuel McCloud, Long Branch; vice-president, Ferdinand Brown, Asbury Park; recording secretary, B. Crowell, Asbury Park; financial secretary, Wm. McMahon, Red Bank; treasurer, John Flitcroft, Ocean Grove.

Thos. Kelly & Bros, 124 Franklin street, Chicago, have been awarded a beautiful bronze medal by the Illinois Chapter of the American Institute of Architects in the first annual Chlcago building trades and material exhibition held in the Institute of Building Arts,

The Climax Oil Heater.

The Climax Mfg. Company, 25 Lake street, Chicago, have brought out an oil heating stove which has decidedly novel Illustrations are herewith features. given which will enable theseto be fully understood. In appearance the heater resembles a radiator. This form has been adopted to secure the maximum of radiating surface. A 4-inch burner is placed in each of the four columns, all taking their supply of oil from the east iron reservoir which forms the base. The reservoir being of cast iron, there is no leakage. The long radiating flues make perfect combustion and prevent odor. An ornamental cast iron top covers the whole of the stove. It has a swing cover, as shown in Fig. 1, which can easily be removed, disclosing two

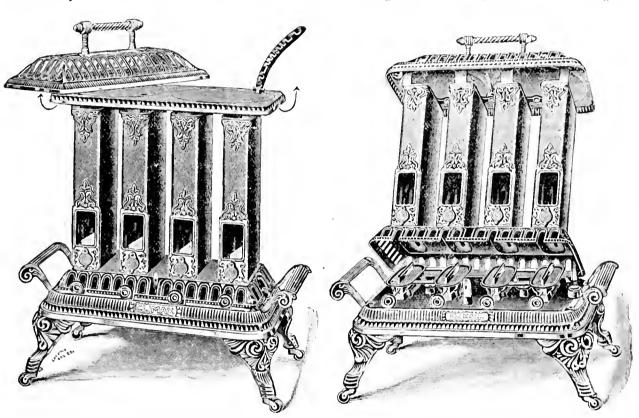


Fig. 1.-The Climax Oil Heater.

Fig. 2.-Climax Heater with Burners Exposed.

succeed by C. Garrabrant & Son, at the old Stand at 19 Stetson street.

A PLUMBER in want of any of the plumbing fixtures that belong to beer pump work, or hints about doing the work, will find the goods and information at the factory of Samuel S. Toombs, 10 Peck Slip, New York.

THE BOARD OF PLUMBING INSPECTION OF YORKERS, N. Y., at a meeting on Thursday night considered a large number of applications from plumbers of New York City and other places. The charter of the city provides that non-resident plumbers cannot work in Yonkers without a license.

Winslow & Meredith, Bennington, Vt., the plumbers, have dissolved partnership, Mr. Winslow buying Mr. Meredith's interest in the business. Mr. Winslow will probably continue the business at the old stand. Mr. Meredith will start in the business again alone.

THE CONVENTION of the Massachusetts Master Plumbers' Association opened in Music Hall, at Fall River, on

Msy 15 to June 2, 1894, for their exhibit of siphon and washout closets and siphon overflow sanitary washbasins.

From the A. Y. McDonald Company, Chicago, we receive circulars of the Eureka seat and the Jetties siphon closet. The Eureka seat is separate from the closet and is supported by an ingenicus device, either from the floor or the wall, leaving an open space behind for cleanliness, and permits the necessary pipe to be run without interference or fitting. The picture of the Jetties shows a very pretty embossed closet, with a round cornered flush tank and independent seat. The closet is of the siphon construction, of which they say: "We have endeavored to put on the market a good closet at a reasonable price, and we think we have succeeded."

A BOND AND APPLICATION for a plumber's license was presented to the Board of Water Works Trustees, at Huntingdon, Ind., by Frank McCsuley. The bond was approved and a license granted.

cooking holes. Fig. 2 shows the upper portion of the stove tilted over for the purpose of trimming wicks. It also shows how the top is arrsnged over the radiating flues. A leading feature of this stove is the fact that one, two, three or all the burners can be used according to the heat required. The radiating flues are made of Russia iron. All exposed iron parts are nickeled. It is mounted on casters, so that it can be easily moved about. The capacity of the reservoir is 1 gallon, which will supply the burners for ten hours. The hight of the heater is  $25\frac{1}{2}$  inches and the weight is 40 pounds. The manufacturers state that its hesting capacity has been thoroughly tested and they offer it with confidence to those who are seeking a powerful oil heater.

GULLATT & WELLS are a new firm at Atlanta, Ga., who will do a general plumbing business at 40 North Broad street. Mr. Gullatt was junior partner of Paul & Gullatt. Mr. Wells was bookkeeper for the same firm for over eight years.

## ROOFING AND CORNICE.

### The Country Cornice Shop.

XI.

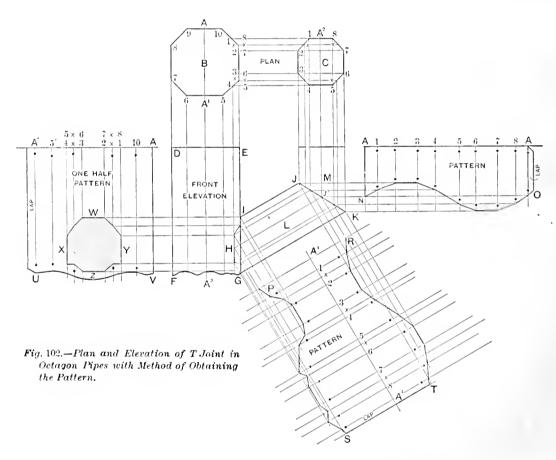
BY CORNICE WORKER.

#### Patterns for I Joints in Octagon Pipes.

In Fig. 102 is shown the plan and elevation of a I joint, also the method of obtaining the patterns, the section of the pipe being octagon. Let D E F G L M, Fig. 102, represent the front elevation of the I joint in question, at any given angle, B in plan view, the profile of the larger pipe, and C in plan view,

pipe C, plan view Fig. 102, as before explained it will be necessary to obtain this seam line in elevation so as to obtain the line of the seam on the elbow patterns. To do so and also to obtain the intersection of the smaller pipe against the larger pipe in elevation proceed as follows: From the intersections of the smaller pipe against the larger pipe in plan, Fig. 102, drop lines parallel to A A<sup>3</sup>, as shown. Now parallel to A A<sup>3</sup> drop lines from the intersections and small figures, including the seam line on the smaller profile C in plan until the lines intersect the miter

tern. It will also be noticed that A A of the stretchout represents the seam A<sup>2</sup> of the profile C and that the seam line intersects the miter line J K at J<sup>1</sup>, and the intersection of the larger plpe in elevation at H, all as shown in Fig. 102. Now at right angles to A A draw lines indefinitely, as shown, which intersect with lines of corresponding numbers drawn at right angles to A A<sup>3</sup>, or parallel to the stretchout line A A from the miter line J K. Short lines connecting the points of intersection, as shown by N O, will be the required pattern for that part of elbow indicated at M in the



THE COUNTRY CORNICE SHOP .- PATTERNS FOR T JOINT IN OCTAGON PIPES.

the profile of the smaller pipe. Care should be taken to draw the plan and elevation in their proper relation to each other. Let the seam in the larger pipe B be placed as shown at A, and let the seam in the amslier profile C be placed as shown at A², Fig. 102. Now at right angles to A A' draw lines from the corners of the profile C intersecting the profile B, as shown at 1 8, 2 7, 3 6 and 4 5, corresponding to the figures on the corners of the smaller profile C, shown in plan view Fig. 102. The next step is to obtain the intersections of the corners, X X and X X of the larger profile B, upon the smaller profile C. At right angles to A A' draw lines from the corners X X and X X, intersecting the smaller profile C on the four sides, as shown by X, X, X and X. As the seam is to be placed at A² in the smaller

line J K in elevation. Now parallel to the lines of the pipe J I or K G draw lines from the intersections on the miter line J K, intersecting lines drawn from corresponding figures on the profile B in plan view. A line traced through these intersections will be the miter line, showing the intersection of the smaller pipe with the larger pipe at the angle E I J as shown by I H G. To obtain the pattern for part of the elbow M shown on front elevation in Fig. 102 proceed as follows: At right angles to A A³ draw the line A A, upon which place the stretchout of the smaller profile C, as shown by the small figures A, 123, &c., on the line A A.

It will be noticed that we have not transferred the interactions x x and x on the profile C to the stretchout line  $\Lambda$  A, it not being necessary for this pat-

elevation. For the pattern of part of the elbow I, shown in elevation in Fig. 102, proceed as follows: At right angles to the lines of the pipe I J or G K draw the line  $A^4A^4$ , upon which place the stretchout of the smaller pipe C, as shown in plan, Fig. 102, being careful to transfer the intersections  $x \ x \ x$  and x to the stretchout  $A^4A^4$ , as shown. At right angles to  $A^4A^4$  draw lines indefinitely through the small figures which interacet with lines of corresponding numbers drawn at right angles to the lines of the pipe I J or K G from the miter line J K at the top and from the miter line I H G at the bottom.

A line traced through these intersections, as shown by PST and R, will be the required pattern for that portion of the elbow, shown at L, front elevation in Fig. 102. It will be noticed that

the lines x, x, x, x, drawn at right angles to the stretchout line A<sup>4</sup> A<sup>4</sup> in Fig. 102, have not been used in developing the pattern of the pipe for the miter line J K. it not being necessary, because the cut R T is the same as the cut N O on the pattern for the pipe M, but they have been used in developing the pattern for the lower part of the pipe L, intersecting with points drawn from the miter line I H G in Fig. 102, as shown in the cut P S in pattern. To obtain the size of the opening which will be cut in the larger pipe, D E F G, front elevation, Fig. 102, proceed as follows: At right angle to A A<sup>3</sup>, draw the stretchout line A A1, upon which place one-half of the stretchout of the pfofile B, commencing at the seam A, as shown by the small figures on the stretchout line A A<sup>1</sup>; the figures 5 4, x x, 6 3, 7 2, x x, and 8 1 corresponding to the numbers, showing the inter-

one, by means of a flaring collar or 'reducer." The following sketches have been prepared, showing how to obtain the patterns, whether the pipe be round, square, or octagon in plan. Let Fig. 103 represent the joining of a smaller pipe to a larger one, by means of a flaring collar, the pipe being round. A B D C represents the elevavation, E F the plan of the smaller pipe, and G II the plan of the larger pipe; I J the straight hight of the flare between the two pipes; the center flare between the two pipes; the center point of the large and small pipe being the same. Connect the pipes as shown by L K and N M, and produce these two lines until they intersect the center Then will O be the center point and O M and O N the radii with

which to strike the pattern.

Now, with O N, Fig. 103, as radius and O of Fig. 104 as center strike an arc, as shown by N A. Draw a line

draw in the bottom flange, shown at R D in Fig. 104, by running the flange through the turning machine, and then draw in the flange with the use of the mallet on the bottom stake. In Fig. 105 is shown the method used in joining a smaller pipe to a larger one, by means of a flaring collar, the pipe being rectangular in plan; also the method of obtaining the patterns. Let A B, 12, C D E F represent the front elevation, K L M N the plan view of the larger pipe, and G H I J the plan view of the smaller pipe. To obtain the patterns for the flaring collar, shown by E F, 12 on elevation, Fig. 105, proceed as follows: At right angles to E, 2 of the elevation draw the line O P indefinitely, upon which place the stretchout of the flare, or slant hight of the collar, shown by 12 or F E of the elevation. At right angles to O P draw lines through 1 and 2, as shown,

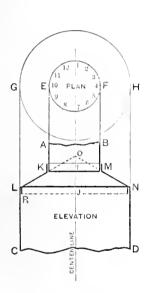


Fig. 103.—Joining a Small Round Pipe to a Larger One by Means of a Flaring Collar.

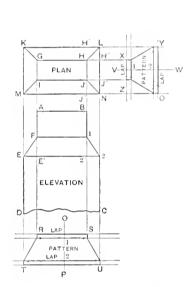


Fig. 105.—Joining a Small Rectangular Pipe to a Larger One by Means of a Flaring Collar; Also Method of Obtaining the Patterns.

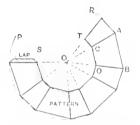


Fig. 107 -Pattern for the Flaring Coltar Shown in Fig. 106.

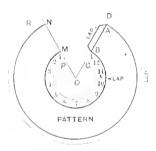


Fig. 104.—Obtaining the Pattern for Flaring Collar Shown in Fig. 103.

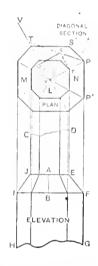


Fig. 108.—Joining a Small Octagon Pipe to a Larger One by Means of a Flaring Collar.

THE COUNTRY CORNICE SHOP.-FLARING COLLARS FOR ROUND, RECTANGULAR AND OCTAGON PIPES.

sections of the smaller pipe C against the larger pipe B in plan.

Now, at right angles to A A¹ drop lines from the stretchout line, which intersect with lines of corresponding numbers drawn at right angles to the lines of the pipe D F or E G, from the mlter line I H G. A line drawn through these intersections, as shown by W X Z Y, will be the opening required. Laps are allowed for riveting on the three patterns, as shown in Fig. 102. It will be noticed that A¹ A U V represents but one-half of the pattern of the larger pipe. For the entire pattern on the line A V, transferring the dots, as shown, which indicate the bends, and omitting the opening W X Z Y and the lap for riveting. This completes the entire patterns required. Laps should be allowed on the miter cuts of all elbow patterns shown in this figure.

### Flaring Collars for Round, Rectangular and Octagon Pipes,

It is often the case in putting up leader or other pipe work that a smaller pipe is connected to a larger from N to O, as shown; then with O M, Fig. 103, as radius and O of Fig. 104 as center strike another arc as shown from M to B. Divide the plan E F, Fig. 103, into an equal number of spaces, and measure off these spaces on the arc M B, Fig. 104, commencing on the line N O, as shown Draw a line from the from M to B. center point O through the point B, intersecting the arc A N, as shown at Allow a lap, as shown from A to Then will A B M N, Fig. 104, be the pattern for the flaring collar, shown by MNLK in Fig. 103. In joining the collar to the pipes flanges would be allowed for riveting, as shown at R and K in Fig. 103. It will be noticed that the flanges K and R are so arranged as to correspond to the flow of the water. To obtain the flanges R and K upon the pattern, add their widths, as shown at R D, in Fig. 104.

Now roll the pattern, shown in Fig. 104, on the blow horn stake, and rivet and solder same water tight. Next atretch the flange on pattern, shown at P C in Fig. 104, by means of a stretching hammer and a square stake, and

which intersect with lines drawn at right angles to E, 2 in elevation from the points 1, F and E, 2, as shown. A line traced through these intersections will be the required pattern for the front and back of the flaring collar. A lap is allowed, as shown by R S and T U, which is riveted to the two pipes when joining, bending the laps in the same manner as shown in Fig. 103 at R and K. To obtain the pattern for the short side proceed as In the case just described.

the case just described.

It will he noticed that we have obtained the two patterns, one from the elevation and one from the plan, and that the miter cuts of these two patterns are alike. It should be understood that if the angles shown in plan by LNM or KMN were not right angles or square bends, the elevation could not be used for obtaining the pattern. But as the angles shown in plan, Fig. 105, are right angles, then for that reason can the patterns be obtained from plan and elevation as in this case, because the projection of the flare 2°2 of elevation, Fig. 105, is the same as the projection of the flare shown in

plan, as indicated by J J" or J J or II H or II II", for in obtaining the patterns, after having the stretchout, we have to deal with the projections only. In Fig. 106 is shown the method of joining a smaller pipe to a larger one by means of a flaring collar, the pipe being octagon. Let C D E F G II I J represent the elevation, L X O the plan view of the smaller pipe and M X the plan view of the larger pipe. It will be noticed that the plan view or pipe has alternate long and short sides. Before obtaining the pattern the first step is to obtain a diagonal section.

Let A B in elevation, Fig. 106, represent the straight hight of the flare, which place at right angle to one of the diagonal lines in plau, shown by X P. At right angles to X Pdraw X O equal in hight to A B of the elevation. Now where the line of the smaller pipe, shown by D E in elevation, intersects the diagonal or miter line X P in plan, as shown at T. draw a line from T at right angles to X P, equal in hight to A B of the elevation, as shown by T S in plan. Connect O and S and S and P, then will OSP X represent a section of the flare on the disgonal line X P in plan. tend the line X O indefinitely as shown by X V. Now extend the line S P in definitely until it intersects the line X V, as shown at T'. Then will T'S and T' Prepresent the lengths of the radii to be used in describing the pattern.

To obtain the pattern proceed as fol-

With T' P of the diagonal section as radius strike an arc with O as center in Fig. 107, as shown from P to R; now with T'S of the diagonal acction in Fig. 106 as radius strike another arc from the same center, shown from S to T. Draw a line in the pattern from the center point O, as shown from O to R, cutting the arc T S at T. Now take the distance of the short side S' P, plan view, Fig. 106, and place it as shown from R to A on the pattern in Fig. 107. Then again, take the diatance of the tong side P P' in plan view, Fig. 106, and place it as shown from A to B on pattern in Fig. 107. In this way the short and long sides are placed upon the patterns alternately until the pattern is complete, having four short and four long sides. From the corners of the pattern shown by R A, &c., draw lines to the center point O, Fig. 107, which cuts the arc T S at T C, &c. Draw lines from T to C and C to D, &c., which gives the widths of the sides of the smaller pipe shown in plan view in Fig. 106. The lines A C B D, &c., represent the bends, which can be made on the hatchet stake. Laps are to be allowed for riveting in joining the large and small pipe to the collar, in the same manner as shown by K and R in Fig. 103. If desired the collar can be made in separate pieces by simply cutting on the lines A C or B D in pattern, Fig. 107, using as many as re

#### FLASHINGS.

quired.

Frank Voightmann, 129-131 North Franklin street, Chicago, is to furnish the galvanized iron cornices, skylights and tile rooting for Judge Lambert Tree's Artist Studio Building, at Ohio, State and Ontario streets. The ornamental pressed work used on cornices is to be of special design.

IN ORDER to better meet the pressure of orders for their Star ventilators Merchant & Co., Incorporated, have erected a large two story building as an annex to their tin plate and smelt-

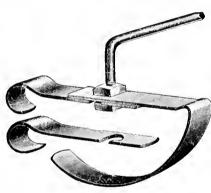
ing plant on Washington avenue, Philadelphia. The new building, which covers a ground space of 50 x 100 feet, will be devoted entirely to the manufacture of Star ventilators. The firm made a notable shipment recently of two carloads, comprising 160 large-sized Stars, to the Pscific Coast, where they are to be used on a new hospital at San Francisco.

Knork & Blocks, 165 Wells street, Chicago, are to furnish the galvanized iron cornices, bay windows, skylights, &c., for the store and apartment building of Martin Fischer, Roscoe boutevard and Woodside avenue.

Allen's Cornice and Corrugating WORKS, 422 and 424 West Randolph street, Chicago, are now installing their new machinery for the manufacture of round and corrugated conductor pipe and gutters. The machinery is of the most improved character, and will turn out work in 10-foot lengths. Samples made on the machines, when they were tested before leaving the factory, show an unusual perfection of finish. expected that the machinery will be thoroughly adjusted and in regular operation by September 15. A large stock of pipe and gutters will then be regularly carried. Among recent contracts taken by these works is one for skylights, pipe, gutters, &c., for a freight warehouse for the Chicago and Northwestern Railway, at Chicago. The building is 560 feet long and 66 feet wide, and required 18 ten-light skylights, 1700 feet of pipe and gutters and other galvantzed iron work. Inquiries are improving.

### The Tuller Eave Trough Hanger.

The accompanying illustration shows the Tuller Eave Trough Hanger, manufactured by W. E. Tuller, Willink, N.



The Tuller Eave Trough Hanger.

The portion that engages directly with the trough is not fastened to the trough by soldering or pinching with tongs or special tools, but is simply clamped around it, making, it is claimed, a neat, atrong and durable job. For repairing an old rusted trough these hangers, according to the manufacturer, have proven themselves particularly serviceable. In case of the trough beserviceable. In case of the trough being rusted through, causing a leak which cannot be soldered, a little thick paint or putty is applied over the hole on the outside, then a small piece of tin bent to conform to the trough is placed over the putty, and one of hangers snapped over it, the these the supporting rod being nailed to the roof. This operation completes the job, and as the manufacturer states, "the time required is ten minutes, charges according to the amount of

satisfaction depicted on customer's countenance." In putting up new trough, especially long lengths which have to be soldered after placing in position, these hangers are said to be very useful. The ends of the troughs cau be slipped together in the usual manner, tirst applying a little thick paint to the joint, then clamp on one of the hangers and the whole is completed, much tighter and stronger, it is claimed, than can be accomplished with a soldering iron under the caves of an old house or bern. A similar operation is gone through with in joining old and new troughs. The easy method of vertical adjustment is particularly alluded to as greatly assisting in giving the proper amount of pitch to the trough, the changes being made by means of the burns on the supporting rod. The hangers are now made in two styles and sizes, 3½ and 5 inches, galvaniz and japanned. They are packed in gross boxes.

### Rusting of Iron and Steel.

Mr. Bramwell is quoted as asserting, in an address before the British Association, that neither bright iron nor steel will rust in pure water or pure air. The presence of carbonic acid or some similar agent, he said, seems necessary, although the final product may be destitute of carbon; and even when oxygen, moisture and carbonic acid are all present, rusting will not take place unless the moisture condenses on the surface of the metal. When rusting does take place under ordinary circumatancea, the first stage appears to be the formation of ferrous carbonate, this carbonate being next dissolved in carbonic acid water to form ferrous bicarbonate, which latter is then decomposed in presence of air and moisture to form hydrated ferric oxide, magnetic oxide being found as an intermediate prod-uct. In regard to the progress of corrosion, a polished bar will resist oxidation for a comparatively long time, even under somewhat unfavorable conditions, but once the rust has commenced only a short time is required for it to cover the whole bar. One reason assumed for this is the fact that the rust is electro-positive to the iron; and it is partly attributable to the final product, the hydrated ferric oxide, being formed only at the end of several intermediate stages of the oxidation, and also to its hydroscopic properties, which favor the absorption of the moiature from the air. In certain situations other acids besides carbonic may take part in the corrosion of iron.

United States Consul Smyth, at Cartagena, Colombia, has informed the State Department of the completion and opening of the Cartagena-Magdalena Railroad, which runs aouth through the Republic of Colombia for a diatance of 60 miles to the town of Calomar. The railroad, which has been built by American enterprise, is expected to revive the former importance of the port of Cartagena, which has one of the beat harbora on the South American Coast.

Work on the new terminals of the Brooklyn Bridge is being pushed as rapidly as possible. At the New York end the new entrance and exit for trucks will probably be ready for traffic in the course of a week, while at the Brooklyn end the construction of the new terminal station, extending down to and over Sands atrect, to join the present structure, is progressing fast.

### HEATING po PLUMBING.

### NEW WORK AND CONTRACTS.

AT A MEETINO of the Stockton, N. J., Board of Education, last week, A. James Smith was awarded the contract for putting in heaters at the Rosedale schools.

WM. REARDON, Bridgeport, Conn., la building a house to be heated by hot air and have a plumbing system.

M. J. Kiehe has the contract for thoroughly overhauling the plumbing in the Park Hotel, New Britain, Conn.

GEO. RAPELYE, New Britain, Conn., is putting plumbing fixtures in M. E. Jacobs' house, at Berlin, where a windmill has just been erected.

F. C. WEIANT & Co., New Britain, Conn., have the contract for the plumbing of two tenement houses on North Stanley street for Walter P. Steele. They also have the contract for the steam heating of the Erwin Home addition; they are putting in 1300 feet of water pipe for the Standard Oil Company on the Berlin branch and are supplying John Pinches' residence with some new fixtures in the plumbing line.

THE CONTRACT has been given out for building the Winchester Building at New Haven, Conn., but the heating and plumbing contracts are yet to be awarded.

F. W. Tolles and Geo. C. Ham are building residences at Waterbury, Conn., that will be heated by hot water.

THE COWLES COUCH COMPANY, 116 State street, Hartford, Conn., have the following contracts on hand: A Caswell hot water heater in W. L. Wakefield's house; plumbing and Gurney heater at the Industrial Home for the Blind, Asylum avenue; a Gurney heater in Dr. Starr's house, Beacon atreet, and an H. B. Smith Company steam heater in a building on Wethersfield avenue.

THE SCHOOL BOARD of New Canaan, Conn., have awarded the contract for ateam heating in the new school house to Begent & Lynch of Stamford for \$753.

B. H. HILLIAR New London, Conn., has the contract for heating and plumbing Charles II. White's new house at Groton, and is also putting in a Richmond steam heater for James P. Johnson.

SHANGLE & SON, Hightstown, N. J., have the contract for putting a double Florida boiler in the Public School.

JAMES CURRAN & Co., New York, have the contract to put a heating plant in the St. Vincent De Paul Academy, and will use a Perfect hot water boiler.

APGAR BROS. 125th street and Seventh avenue, New York, are putting six Bolton hot water heaters in houses being built by J. M. Cahill.

THE COMMITTEE ON FUEL AND HEATING of the Council Biuffs, lowa, City Council have power to act in remodeling the heating plant in the High School.

PETER J. CARPENTER, Dobba Ferry, N. Y., is putting a Ftorida steam boiler in his own residence.

THE GREENSBURG, PA., SCHOOL BOARD has given the contract for heating School Building No. 3 to Painter & Sloan, and the contract for plumbing the same building to Shutte & Kaine.

THE REPAIRS AND JANTORS COM-MITTEE of the School Board of Reading, Pa., held a meeting last week and awarded the contract for extra steam heat radiation in the Boys High School Building to the Keystone Steam Heat ing Company.

SPICER BROS. have just taken the contract for plumbing the large and elegant stables recently erected at the residence of Henry Sturges in Fairfield. Conn. In addition to this they will also construct a sewer by which the house and stable will be thoroughly drained.

GEO. M. ROSSMAN, Keene, N. H., has the contract for heating the Lane Block and the Keene National Bank with steam, and will use the Exeter ornamental radiators, which were also used by him in the Y. M. C. A. Building.

THE SCHOOL BOARD of Upper Oswego Falls, N. Y., are considering a heating plant for their school building. It will be hot water or hot air.

THE BOARD OF EDUCATION of Genesee, N. Y., have authorized a committee to carry out a plan for heating one of their school buildings.

Hunt & Connell bid \$4770 and accured the contract for heating and ventilating School No. 19, at Scranton, Pa.

S. A. PHILLIPS has secured the contract for hearing and ventilating one of the schools in Barre, Mass.

H. W. Hubbard is putting in the steam piping and apparatus for heating the Gurnsey Building, at Keene, N. H.

F I. LESSARD & Co. Manchester, N. H., have contracted to put steam heat fittings throughout Towne's block. They are moving their sample room from 1268 Elm street into the Ray block.

THE PUBLIC BUILDINGS COMMITTEE of the City Council, Worceater, Mass., have awarded the contract for heating and ventilating the Abbott Street School House to O S. Kendall. The contract price is about \$2400.

EDWARD E. ELLSWORTH is putting a new steam heater in the cellar of the Temple of Honor Building, at Portland, Conn.

A STEAM HEATING APPARATUS is being put in the buildings of the Connecticut Literary Institution by the S. H. Beard Heating & Plumbing Company of New Britain, Conn.

THE CONTRACT for making the alterations and additions to the hot water heating apparatus in the court room of the Court House, at Green Bay, Wis., has been awarded to John F. Bertles for \$151 10. The galvanized from work, registers, &c., will be furnished by W. D. Cooke for \$272 88.

SEALED PROPOSALS will be received at the effice of the Supervising Architect, Washington, D. C., until September 21, for the work, including the roof covering, drainage, &c., for the United States Post Office Building, at Roanoke, Va. Copies of the drawings and specifications may be obtained from the office of the superintendent, at Roanoke, Va., or from the office of the Supervising Architect, Washington.

Among the contracts recently taken for steam heating by the Sam'l I. Pope Company, 207 Medinah Temple, Chi cago, can be mentioned the following: Four cottages for the insane at Newberry, Mich.; Administration Building, Minnesota Hospital for the Insane,

Rochester, Minn.; Parcchial School, Noble street, near Milwaukee avenue, Chicago: Peabody School, Noble and Augusta streets, Chicago.

At a special town meeting, at South Hadley, Mass., \$1800 was appropriated for a new heating and ventilating plant for the High School Building.

DESORMOUN & Co. bid \$1175 and secured the contract for heating the Clifton Street School Building, at Springfield, Obio.

KEHM BROS. & MERTZ 289 East Kinzie etreet, Chicago, are to install a hot water heating plant in the flat building of D. O'Brien, 635 Boulevard place.

B. D. Duggan, 207-209 Lake street, Chicago, is to supply a Rechmond hot water boiler at d necessary radiation for heating the Catholic school and sisters' residence, Hammond, Ind.

School No. 12, at Scranton, Pa., will be heated by stoum after the plan of the Smith Heating & Ventilating Company of Boston.

THE CONTRACT for the plumbing work in the new Colwell Building, at Ottaws, Ill., was awarded to Reed & Law.

THE BALTIMORE & OHIO RAILROAD COMPANY have let a contract to the Gold Steam Heating Company of New York for heating 500 ears by the hot water system.

THE SCHOOL BOARD of Macungie, Pa., have arranged to have an Auturn steam heater placed in the borough school building, to heat the four rooms. It will be furnished by Krauss Bros. of Kraussdale.

II. W. Hunnard is putting in a steam heating apparatus and piping to Gurnsey's new building at Hindsdale, N. II.

THE STATE HOUSE CONSTRUCTION COMMISSIONERS Of Massachusetts have executed a contract with Albert B. Franklin of Boston to furnish and erect the steam heating and ventilating apparatus in the State House extension.

THE DAVENPORT ETEAM HEATING COMPANY, Davenport, lowa, through their secretary, Mr. Abrens, have secured a \$5000 contract in Eldora, Iowa. The company have already constructed over \$15,000 in work in that town.

The J. L. Mott Iron Works, 311-313 Wabash avenue, Chicago, bave secured the following recent orders for their plumbing goods: New City Hall and Court House, at Minneapolis. Minn.; two public schools and Hull Seminary, at St. Paul, Minn.; public school butlding, at Terre Haute, Ind.; United States Givernment barracks, at Fort Leavenworth, Kan.; residences of P. D. Armour, Jr., E. G. Forman, M. O. Rosenberg and all of the stations of the Metropolitan Elevated Railroad, Chicago.

THE SMITH & ANTHONY COMPANY, 219 Lake street, Chicago, are to furnish their steet plate warm air furnaces for heating the five houses of F. R. Kirkham, Ravenswood.

BRAY & KATES, Arlington Heights, Ill., have the contract for ateam beating in the new public school building. The American Boiler Company's goods will be used.

EDWARD E PARKER, Woburn, Mass., has been awarded the contract for heating and ventilating the new armory at Stoneham, Mass.

# THE RETAIL STORE.

American Bread Knife.

The cut here shown represents a bread knife put on the market by the American Cutlery Company, Chicago, Ill. The makers refer to the knife as differbow down to success but quick to patronize and rather rejoice at a turn in the tide that changes the thood of some one else's presperity into loss or failure. We are apt to measure ourselves by others and measure others by



American Bread Knife.

ing in appearance from others both in the blade and in the handle. The handle is put on the blade of the knife by pressure, there being two small holes punched in the blade, into which lugs stamped on the inside of the slots of the handle fit. The lugs in the slot of the handle are placed over the holes in the blade and are forced into position by pressure alone.

### An Unsuccessful Venture.

A business man of prominence in an interior city refers in the following communication to his experience in connection with an unsuccessful enterprise in which he was persuaded to engage. We presume that many of our readers can sympathize with him in the result of the venture:

I had no conception how much the

I had no conception how much the world worshiped success until I had met with some severe losses. For a score of years, so far as the public knew, and also in fact, I had been successful. I had made mistakes and met with losses, but these were not equal to my profits in any one year and neither did I advertise them.

In course of time quite a number of people appeared to be anxious for my advice and I was invited to go into every new enterprise, being almost invariably told that my taking hold would be of value in securing help and subscriptions from others. So common had this become that it long ago had ceased to be a matter of any pride to me. I am afraid that I began to accept myself at the valuation other people seemed to place upon me and perhaps became too confident in myself and my own judgment.

At any rate, I invested in a certain business outside my own line and went in rather heavily. It seemed to have hard sailing, so I took hold of it in rather a prominent way, hoping to pull it through, but it was too much for me, and the concern failed.

The public must have had an exaggerated idea of my losses in connection

The public must have had an exaggerated idea of my losses in connection with this venture, for, as a fact, they did not seriously bother me, though, of course, I did not talk this way. My old friends sympathized with me in a patronizing way, as if mentally adding: "You ought to have noticed that we were not in that venture and have staid out." The people who used to call on me for advice came in now to commiserate with me and advise me not to go into such schemes in the future, and everybody took on very patronizing airs with me and they still treat me in that way.

It is both amusing and humiliating; it teaches that the world is ready to

their success or failure. It will be some time before I regain my position as adviser to the public at large.

#### Major's Ice Float.

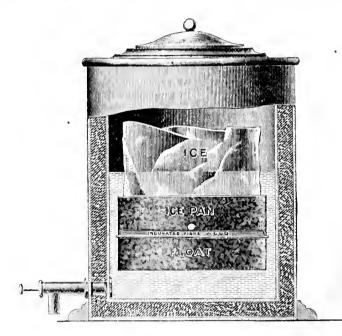
A. Major, 232 William street, New York, is affering an ice float for use in water coolers, as shown in the accompanying cut. The float is made of galvanized iron, the part described in the

the cooler. It is explained that the float is also adapted for use on steam-boats and railway cars, where in coolers without this device the water is constantly washing over the ice and melting it rapidly, as the float serves as a plug and prevents the water washing over the ice. Floats are made to order for equare and irregular shaped coolers.

#### MEMORANDA.

The R. E. Dietz Company, 60 Laight street, New York, are adding several new things to their line of lighting, heating and cooking goods. One is a glass font lantern, also a street lamp with a glass font. The Dietz revolving searchlight is a new lantern of great illuminating power.

THE UNION PLATING & MFG. COM-PANY, Freeport, Ill., are putting on the market a new stove poker with a coiled wire handle. In construction a slot is cut in the end of the poker, in which is inserted the end of the coil, after which the slot is closed by pressure, holding



Major's Ice Float.

cut as the float being 3 inches high, and the ice pan above 4 inches deep. The the ice pan above 4 inches deep. The floats are made regularly in all sizes from 6 to 14 inches in diameter, and are used in coolers whose inside diameter is 1 inch larger than that of the float. hole is provided at the bottom of the pan for letting the water out as the ice melts, when the pan is above the water. The maker states that water drawn from a cooler registers from 44° to 48°, while in the pan above the float it registers 36°, an average difference of about 10°. The point is made that drinking ice cold water results in much sickness and not infrequently in loss of life, while the use of the float will prevent both. It is claimed that the use of the float will make a saving of from 25 to 331 per cent. in the ice used, and that it is a perfect protection to the bottom of the coil firmly in position. The poker is full nickled, and is furnished with either straight or bent ends.

On August 22 the firm of Wright & Hutchison were dissolved by mutual consent. F. G. Hutchison will continue the business of hardware and tinning at the same location, 13 South Parke avenue, Warren, Ohio.

"SMITH OF NEW YORK" is the way the lamp trade speak of Charles G. Smith, 350 Pearl street, New York, who makes a specialty of lanterns, car lamps and all their fixtures in a variety of styles, sizes and illuminating power.

Warehouse accommodations in Baltimore are entirely inadequate to meet the enormous quantities of tobacco that have recently been sent to that city. The American Time Recorder.

September 1, 1894

The New National Time Recorder Company, Milwaukee, Wis., are offer-

the impression is made by the registering keys. By looking on the right of the dial, Flg. 2, it may be seen at any time of the day by the employer, or any one interested, that No. 2 was 15 min-

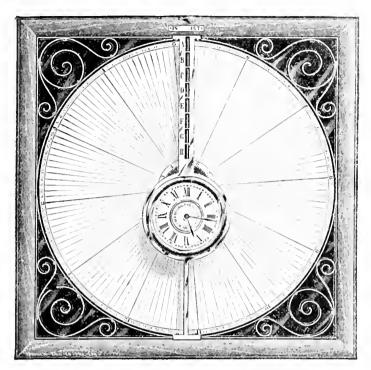


Fig. 1.-The American Time Recorder,

ing a time recorder, as illustrated herewith. The recorder is shown complete in Fig. 1, and will take a 21-inch tered. It is explained that by a novel

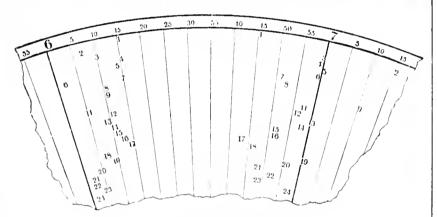


Fig. 2.-Portion of Record Dial.

record dial. In Fig. 2 is shown a portion of the record dial after a day's registrations have been made. The heavy lines are hour lines and the lighter once five minute lines. The figures to the



Fig. 3.—Registering Key.

right are printed in red and indicate the arrival of employees, while the figures to the left are in blue and indicate the departure of employees. The registration in two different colors is accomplished by shifting a little lever, which throws either a red or blue ribbon in commission, through which

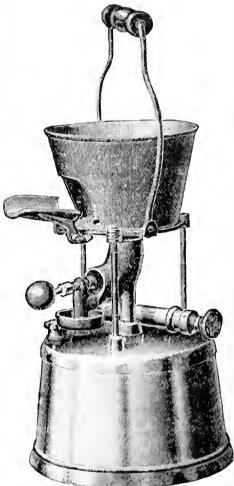
arrangement the numbers come conarrangement the numbers come consecutively on the record dial, and that the key, Fig. 3, will enter only the hole for which it is intended. A key is carried by each employee, and a sligh pressure upon it will ring a bell, indicating that a registration has been made. Within 15 minutes after the registrations have been made they come into full view as the cylinder revolves, and remain in view for about five and a half hours. The makers remark that they use the best eight-day movement made by the Seth Thomas Clock Company, which is sufficient guarantee for accuracy The recorder described will register 100 employees, and by using a number of recorders, as many as 1000 can register, the numbers coming consecutively. The low price at which the recorder is sold is a feature emphasized by the manufacturers.

Continued wet weather has caused much damage to the crops in many parts

of Europe. Harvest prospects, both in Great Britain and on the Continent, are reported as unfavorable.

### "Hot Blast" Plumbers' and Solderers' Purnnee,

The illustration herewith given shows a new plumbers' and solderers' furnace, which has been brought out by the white Mfg. Company, 40 and 12 State street, Chicago. It is a gasoline furnace, of unusually high heating power, intended for melting, heating of soldering coppers, &c. The burner has a powerful generator, which the manufacturers claim will not elog up. The pump is simple and quick acting. The reservoir is spun out of one piece of heavy 14 gauge sheet brass, covered with a cast top and will neither sweat nor leak. It is tested to 50 pounds' pressure and will hold 1 gallon, and



"Hot Blast" Plumbers' and Solderers' Furnace.

the furnace will run from 10 to 12 hours, according to the size of the flame used, without retilling. It will run three hours without repumping, and two soldering irons can be heated at the same time. It is fitted with patent renewable needle valve seat, which is also a feature of the Imperial hot blast blow pipe manufactured by the same company. The burner can be renewed for 10 cents, if it should wear out, thus making a practically new torch at very low cost. The blast or heat can be regulated to any desired degree, but it is so strong that the furnace can be used on roofs and other exposed places in the strongest wind without blowing out. The net weight is only 10 pounds.

# STOVE TRADE NOTES.

### The Local Stove Trade.

To be compelled to say that the local stove trade was no better than when last reported in these columns a month ago would be a sorry admission to make. It is better and improving all the time, though not as fast as is usual at this season of the year. Trade is later and stock orders will be lighter than

The effects of the long period of depression have been more severely felt in some sections of the city than in others. On the east side of the city, where dwell the poor, the loudest complaints of poor business are heard, and in order to keep the old stove together the people resort to measures that ordinarily would exhaust human patience. Many dealers say that they do not even sell stove bricks and grates, and that fire clay has taken the place of bricks altogether. People plaster the sides of the fire chamber with fire clay and wire the broken grate together, repeating the latter performance two and three times a week, being too poor to purchase a new article. The average of the sales of small stoves in the section of the city referred to has been about one stove in four weeks by any one dealer, or a total of about four stoves during the whole summer. Dealers say, however, that better business is now in prospect, and men in the neighborhood who have been idle a long time are daily obtaining work and expending their earnings for supplies, of which they have for a long time been forced to deny them.

Many heating atoves are carried over by dealers in this section, and purchases will be limited to cook stoves and ranges until the cool weather arrives and isst winter's stock is disposed of. On the west side of the city the stove business is in a better condition, and there are fewer heating stoves left from last year on hand, but dealers are very cautious and buy sparingly and generally decline to order their fall stock until the middle of September.

The conditions in the neighboring cities are practically the same as in New York. One thing is cartain—the needs of the people are many, and, if the weather should be cold during the fall and winter, the stove business will be one of the favored branches of trade and secure more than an equal share of the money distributed for furnishings. Prices are still well maintained and very little cutting is heard of.

The tariff matter is settled, and can no longer figure as a bugaboo to frighten

the people into the belief that some business calamity greater than the country has passed through still awaits it, and business can be adjusted to actual conditions. The atmosphere is cleared and improvement will be steady and sure.

### The Schuylkill Valley Stove Company

of Spring City, Pa., have just supplied their friends in the trade with copies of a very neat and tastefully printed catalogue of ranges and heaters is a volume of nearly 70 pages, bound in flexible covers, having in gilt letters a side title consisting of the name and The makers address of the company. state that since the last edition was exhausted many changes have taken place and that now they are in a position to cifer goods embodying improvements which cannot fail to interest the trade. The first place in the volume is given to the New Model, an entirely new six-hole range with ventilated oven, large flues, patent oven door opener, ilst or duplex grate, as may be preferred, and rich ornamen ation. The Ludies' Choice is another attractive range belonging to the same general class, this being followed by the Model Workman, a newly improved six hole range, made in four sizes and the usual modifications. O her goods include the Master Workman, the Valley Pride, the Grand Chief, the Vincent, the New Agnes and the Chief, the latter being a newly modeled sixhole range of attractive appearance. The leading place among the heating atoves is given to the Fame, made direct draft and full revertible flue. It is well made in all its parts and is referred to as being a powerful heater. Parlor Beauty, Valley King and Valley Queen are also attractive heaters embodying modern features and made in a variety of sizes. Cannon and laundry stoves, farmers' boilers, waille irons, cake plates and miscellaneous goods are also considered in the closing pages.

### The Perry Stove Company,

with main office and works at Albany, N Y., have just issued a 158 page ca'alogue of their leading specialties, which are offered under the name Argand. The edges of the pages are finished in light red, the corners are rounded and the covers are of muslin with side title in black. The frontispiece is a bird'seye view of the company's plant, which friends in the trade are invited to visit An explanation of the telegraphic code is incorporated in the catalogue, a statement of terms and a brief reference to prices and discounts occupy the opening pages, a ter which attention is invited to the Happy Home range, made in a variety of styles and sizes, for hard or a ft coal or wood. Next in order is the World's Argand, six hole range, with a full list of its constructive features. A broken view of the stove is given showing how the grate may he easily re moved. The Magic Argand follows,

prefaced with an illustrated description of the company's new grate known as the bi plex. Altoge her some 60 pages are devoted to ranges, which include the Standard Argand, Loyal Argand, New Gipsey, New Hero, Novel Argand, Glen Argand, Pacific Argand and Bob White. The next 15 pages are devoted to cook stoves, and then come the heaters. These are various in style and finish, and embody features which have rendered the Argand well known to the trade. The World's Argand base burner, with large hot air flues, occupies the place of honor, and is followed by such constructions as the Royal Argand base burner for hard coal, the Grand Argand, a member of the same class; the Derby, Fulda, Peerless Argand, Franklin, Tremont Daisy, Cadet, surface burner; Happy H me cottage parlor, Champion Todd, Elmwood, box; Lotos laundry and the The Royal oit and lamp stoves Aurora. are considered in the closing pages of the volume, also hot plate gas stoves, hollow ware, stove linings, &c. The volume is neatly printed, carefully arranged, and will prove a valuable addition to the dealer's library of stove trade literature.

### Stoves and Ranges.

BY PIPE HOLE.

You can read this with safety and possibly some amusement, for it ain't a sign and I don't want you to buy none. By the way, maybe you know the difference between a stove and a range, being as how you are in a stew or a fry about what to buy and how to pay for it and make a profit this year. Just as like as not you could tell better than I can, but I've got the bulge on you. I don't mean by that that you're an old stove with a bulge pot on bitin for me. Nothin personal; no. I do mean that this is my explanation and as I'm writing it you can't break in on me. I'm going to have my say clean to the end.

Between 20 and 30 year ago a stove was something to ecok with, and if something was wanted to heat the front room you bought an air tight or a gas burner or a radiator. They call them surface burners and revertible flue stoves now, but a stove meant something to cook with and the step stove was taking a back seat for the flat top now gener ally known as a cook stove. I reckoned you'd get your oar in and ask why a range wasn't a cook stove, as well as an oil stove, gasoline stove, gas stove and electric apparatus? Well, it is because they sin't got no pipe hole at the back, oven doors on both sides and three flues under the oven and several other reasons. Talk about your "base releaf" ornamentation and art design, the old Sea Shell of them times was a sample of deep carving that tried the molder's skill and made the blacker aweat and cuss. Some of them old panels showed a touch of genius compared with which a feller feels sick when he sees the congiomeration of paper mashay, limecrust and-water, stucko and putty, base imitations of things on the carth beneneath and under water.

My! what them fellers will have to answer fer. In them times a catalogue had the cook stoves, or cook's stoves, as a grammarian chap told me was the correct way to speak of them, all shown right in the front, in the place of honor, and the ranges took a back seat. The ranges were only little things then, used for summer work, and gradually they got to where they are to day, in the front in the eatalogues and in the people's favor. You see the cook stoves (it cost that rhetorical gent a dollar for me to struggle with "enok's stove" me to struggle with for his benefit in selling him a stove having the pipe hole at the back made them set away out in the kitchen. This was all right in the winter, for they not only heated the kitchen first class, but a drum heated the old man's bedroom, and leaving the back stair door open kept a feller's breeches from feeling like a snow bank when he coasted off of the hen's feathers into them at the dawning of the morning. It kept a feller cutting wood or burning coal to do this, and reduced the popularity of the stove somewhat, but in the summer vou cou'dn't eat in the kitchen and the flics in the butter, and the extra work of running to a table set in the shed opened the women's eye, and the range filled it full.

You see, a range don't have any oven door on one side and the pipe hole is on that side, so you set her right up agin the wall and it didn't take up near so much room. I know you want to ask if you couldn't set a cook atove the same way. Of course you could, but it wasn't the fashion and people didn't do it. Fashion's a great thing. Why, the gals wore galluses last year, even if it wasn't becomio'. cos 'twas the fashion. No; you couldn't set a cook atove like you can a range. The flues of a range are different, so that they work first rate with smaller fire boxes, and ranges have had the advantage of modern ingenuity and they certainly are handy.

But dld you ever order repairs for ranges from two different sections of the country? Well, its either amusin or exasperatin. To begin with, the left hand side of a cook stove is the back of a range and the back of a cook stove is the well, let's go a little slow and ask a question. When the oven is on the right hand side of the fire is it a right hand range or a left hand range? That is an unsettled question, some holding that the fire being the important, yes, indispensable, feature, that such a range is a left hand range. I think it is a right hand range, been brought up on it and think l'il stick to When you face the pipe collar of a cook stove you are standing in front of Well, just stand in front of a range and order a front grate and see what you get Some call that grate the end grate because it is in the end of the fire chamber; some, again, call the other grate in the open end ranges the end grate because it is at the end of the range. Money has been spent to make pictures of ranges with every plate in them numbered and printed the cuts in circulars and catalogues to prevent mistakes, and yet I'll bet a dozen pipe holes that some repair dealer lases some feller's trade before Christmas just because a range is different from a cook atove to order repairs for.

What is the remedy for this trouble? Oh! that's easy. Time, just simply T-I-ME In time we'll all sell gas, oil, vapor or electric stoves that we won't have to black, and much blasphemy will be avoided, as the fellow who now puts up his own pipe himself will have it done by an expert. If you

had a chance at me you would say that my explanation of the difference between a stove and a range did not display much tact in handling the subject. Well "set" on the "tact" if you like.

### ODD PLATES.

THE W. J. LOTH STOVE COMPANY OF Waynesboro, Va. favor us with a copy of a supplementary catalogue which they have just issued relating to Blue Ridge cook stoves, ranges and heaters. The 24 pages of which the pamphlet is composed carry illustrations of a varied assoriment of the goods named, together with sizes, oven and fire box dimensions, prices and brief descriptive particulars. The leading range is offered under the name Fannie it being a new cheap five-hole construction intended for burning coal or wood as fuel. It is made in five sizes with ovens ranging from 14 x 13 x 10 inches to 18 x 17 x 111 inches. The cook stoves include the F. F. V. and the New South, each made in six sizes for coal or wood. The heaters include the Blue Ridge Franklin, made in three sizes; the Templeton, a neat cottage parlor in three sizes; the Valley, a cheap dwarf stove; the list of hollow ware is also presented. Mascot cannon and the Carey box.

THE PENINSULAR STOVE COMPANY of Detroit, Mich., and Chie go, Ill. are now fitting up the Commercial Hotel, Monticello, Wis, with a Peninsular heating and ventilating plant.

"PERSISTENT PERSEVERENCE PRODUCES PROSPERITY" in cardinal ink, with the initial P of commanding prominence in each word, adorts the back of all of the envelopes sent out by F. M. Borden & Bro. of the Quaker City Stove Works, Philadelphia, Pa. In no line of business is this more true than with the trade with which they have the largest dealings. If it will make those who order stove repairs this fall stop and think it will add to their profits, which is synonymous with prosperity.

THE WORKS of the Somerset Stove Foundry Company, Somerset, Mass., resumed active operations on the morning of Monday, August 20, after a shutdown of about two months.

The Manchester Stove Company of Manchester, Ohio, have recently been chartered, the capital stock being \$15,000. Among those interested in the new concern are G. H. Halliday of Ironton, and J. N. Patton and J. A. Shiver of Manchester, Ohio.

THE DIPPO MFG. COMPANY of Chagrin Fal's. Ohio, are booking orders in a way which indicates a rapidly growing popularity for their goods. The demand is such that they have recently increased the force of hands by 50 and are now running full time and capacity.

Syracuse Stove Wonks of Syracuse, N. Y., call the attention of the trade to the merits of their Welcome double oven range, which is made both portable form and for brick setting. It has smooth castings, large broiling surface, extra linings between brick and oven plates, flues so disposed as to be easily cleaned, and water back which can be used either right or left hand. Attention is also invited to the Kernan warm air furnaces, made by the Kernan Furnace Company of Utica, N. Y., who, with the concern previously mentioned, invite members of the stove and furnace trades to visit the New York State Fair, to be held at Syracuse, September 6-13,

inclusive, and inspect the lines of Welcome stoves and ranges, as well as Kernan warm air furnaces, which will be on exhibition

The Hersh Furnace Company of Leighton, Pa., are distributing a package of advertising matter which is likely to interest the dealer who is desirous of keeping up with the times. One of the little folders is entitled, "A Burning Question," being in substance an answer to the query, "How shall we keep warm this winter?" Another tells all about the Lehigh furnace, for house heating, giving a table of prices, also of the capacities of the various sizes in which it is made and mentioning the principal features of construction. Still a third gives a "seasonable hint" to those who have a house to warm the coming winter.

Charles W. Richards, temporary receiver for the Simonds M'g. Company, 50 Chiff street, New York, has recently issued an announcement to the effect that under the order of the court he is authorized to continue the business of the concern, and preserve and promote its interests pending reorganization of the company.

THE SCHNEIDER & TREUKAMP COM-PANY of Cleveland, Ohio, favor us with a copy of their 1895 catalogue of Reliable gas heaters parlor grates and radlators. It is a neatly printed pamphlet of 48 pages, profusely illustrated and bound in paper covers of rich design. General directions for operating and taking care of Reliable heaters constitute an interesting feature of the early pages, while a telegraphic code composed of words beginning with the letter "F" occupies the last page of the publication. The intervening pages are devoted to gas heating contrivances, ranging from the handsomely decorated base heater, provided with a 12½ inch atmospheric burner, down to the four-flue radiator for coal or water gas. A novelty for the season of 1895 is a heater which is said to combine the beauty in design and finish of their radiator, "with the powerful heating qualities of an incandescent fire back." It has Russia iron radiating tubes, cast Iron asbestos back fire box, mica doors studded with jewels of different colors, and large radiating surface. The company will offer the trade two styles with two sizes in each. Class A will have a corrugated body, and class B a Equare body. The designs of the parlor grates shown are rich and effective, and they are offered in both plain iron and brass finish. An assortment of gas burners is also presented.

TAUNTON IRON WORKS of Taunton, Mass., have just sent out an exceedingly neat trade price-list, known as No. 4 E, and intended to "supersede all previous lists." Its 24 pages are printed in a tinted ink and bound in dark green paper covers carrying side titles in old The goods covered are made under the generic name Quaker, all of which have on the oven door plate the head of a Quaker, which is "a guarantee of excellence." Prices are given of the Grand Quaker, Quaker Crown, Quaker Prize, Art Quaker, Quaker Junior Art, Quaker Crown Hotel and Quaker Hotel ranges, New Octagon oval parlor, New National Record, Frankfort, Blossom Bud and Comfort heating stoves, portable oven and tailor atoves, chimney tops, broilers, kettles, ash doors, water front couplings and hollow ware.

THE PEERSKILL STOVE WORKS, 12 Peck slip, New York, report a good trade on the Rex range, their latest pro-

duction with closed end. It is a fivehole range with tlat grate, end shelf, oven door kicker, nickel panel and very pretty. They will soon show samples of a new square stove that is coming.

"In ordering repairs be very explicit" is the first sentence in large letters on a very seasonable six page circular devoted to stove repairs that is being sent out by the Stove Manufacturers' Repair Association, 233-235 Water street, New York. In addition to some valuable suggestions about ordering stove repairs there are five sectional cuts showing the plates in stoves of different construction all numbered so as to avoid mistakes. A list is given of the manufacturers whose repairs are in atock, also a list of the water backs carried.

J. M. REILLY has just returned from a Southern and Western trip, and is the guest of Al-x. B. Johnson, manager of the New York house of the Raymoud & Campbell Mfg. Company of Middletown, Pa They are both pleased with the advance sheets of the new catalogue that will soon be issued, which will be of white paper, with a buff tint in center of the page, on which the cuts and letterpress will appear. The sheets now being distributed are of their new Square Parlors, the Art Perfect, Perfect Gem and Perfect Square. Both the sheets and stoves are well worth seeing.

Shinnick, Woodside & Gibbons Mfg. Company of Zancsville, Ohio, proprietors of the Union Foundry, are distributing a new price list of their leading specialties. It is of a size convenient to carry in the pocket, is profusely illustrated and bound in colored paper covers. The principal lines of ranges and cook stoves are made under the name Sensation, the company offering the trade 60 styles and sizes, adapted for burning coal or wood. These goods embody the modern features and arc ordamented in a neat and tasteful style. Attention is also given to the Sentinel, the Escort, Sensation Wood, White Oak, Indianola and Winona. Among the heaters may be mentioned the Red Oak, made in three sizes and ordamented nickel and tile; the Sensation Oak, the Gem Franklin, the Scout, the Comfort, the Fairy Dwarf, the Nons, the Meda, the Burnaide and the Woodside. The Dew Drop has been improved and is offered full nickeled in two sizes.

The Wrought Iron Range Company, with main effice and works in St. Louis, Mo., and branch in Toronto, Ont., send us a poster of liberal proportions showing views of numerous specialties of interest in connection with kitchen and hotel outfits. At the top is a picture of the Home Comfort wrought steel hotel range, below which are oyster cookers, soup tureens, chafing dishes, wills irons, gas cake griddles, soup stock pots, ice cutters, combination slicing machines, &c. On the other side of the poster are illustrations of Home Comfort urns, Home Comfort salorn and restaurant lunch tables, gas wifll; stoves and individual chafing dishes. Accompanying the cuts are brief descriptive particulars, together with the sizes and capacitles in which the goods are made.

THE CARTON FURNACE COMPANY of Utica, N. Y., have just issued for distribution by their agents five circulars descriptive of a similar number of their leading specialties. The circulars consist of four pages each, printed in blue ink and illustrate and describe the Car-

ton low gas tight self cleaning furnace, Carton's Tropic furnace with return flue radiator, Carton's Junior furnace with east iron return flue radiator, Carton's Phænix steel dome furnace and Carton's soft coal hot blast smoke consumer. Each circular also gives the dimensions of fire pot and casing of the various sizes in which the particular heater described is made.

THE ATTENTION of those who pass the New York office of the Central Oil Gas Stove Company is attracted to their new Parlor Dome oil heater, occupying one of their show windows. one of their latest productions, which is made entirely of cast iron, with the exception of the oil tank, which is a scamless drawn steel reservoir, heavily tinned and fitted with a circular wide burner. It is made in three sizes, giving respectively 10, 12 and 15 inches of flame burning on the central draft principle, which, it is claimed, accures odorless combustion and produces an intense heat. The stove rests ornamental tray having castors. The stove rests on an design of the stove is at once pleasing and graceful, the lower portion being an irregular globe supported by appropriate feet and receding above the center, where foot rest is attached. Above this point it increases to a large diameter, at which point the flame exerta its force and the handsome dome with its ornament surmounts the whole. stove is said to have the capacity to heat a large room. The summer goods, of which the Improved oil gas cook stove was the leader, are being arranged to occupy less space, and preparation is being made for the heating stove line, which will contain many improvements and some new features. A fine line of lamp stoves is shown, of which the Florence is still the favorite. In gas goods their line is not confined to heaters and cooks, but they show in addition sad irona, griddles, broilers, sol-dering furnaces, plumbers' furnaces, sad iron heaters and a great variety of laboratory goods.

The Newest thing on the sample floors of Wm. Kerby, 4 and 6 Peck slip, New York, is a No. 240 Saxon furnace made by Isaac A. Sheppard & Co., Philadelphia, Pa. It has a heavy corrugated fine pot with a corrugated dome of peculiar shape resting upon it and supporting a large heating drum of No. 18 steel. A patent revolving scraper is placed in the drum for cleaning it. A lever shaking center slide grate and a dust flue are provided. It is put forward as a furnace to suit the times.

A card is being aent out by the Stove Manufacturers' Repair Association, 233 Water street, New York, that is blank on one side for the address and stamp and on the other side is a picture in brown ink of a heavy door with massive wrought iron hinges to which a atring is attached. "The latchstring is always out; pull it," is on the door and on following the suggestion an invitation is found to buy grates and bricks from them.

"Characteristic Catalogue Cuta" is the title of a 19 page selection of such goods as will interest builders and architects that is being issued by Isaac A. Sheppard & Co., Philadelphia, in the interest of Wm. Kerby, 4 and 6 Peck slip, their New York house. The first page shows their Paragon hot air furnace, which is claimed to be second to none, followed by the Saxon, "a furnace to suit the times." Four pages are then devoted to the Fidelity fire

place heater, with square or circular frame, embellished with nickel plate, with or without magazine and for hard or soft coal. "A few straws to show the wind of popular favor" precedes a scries of testimonial letters on the Fidelity range, cuts of which, in its different styles, occupy six pages. The last two pages are devoted to the Royal Fidelity, their newest range.

THE UNION STOVE WORKS of 70 Beekman street, New York City, are offering the trade the Paragon B 1894 range in additional sizes and new style of cabinet base. It is provided with patent oven door opener, large broiler door and heavy ash pan, Read's damper and broad moldings highly finished. The appearance of the range is massive and the ornamental features rich and tasteful. The company also invite attention to the Flirt B cylinder atove and the Durham and Lakewood ranges which have been improved for 1894. The company now make two sizes of the Red Cloud furnace and have added a large size to their line of Commander hot air furnaces.

THE EXCELSION MFG. COMPANY, St. Louis, Mo., are sending out a circular to the trade describing their hot blast soft coal heater. In addition to a view of the atove as it is set up, they also show a sectional view, giving the internal arrangement and construction, and also a view of the atove with the top outside section removed. The latter view is interesting, as it shows the dealer how readily the top section can be removed for the purpose of making any repairs that may become necessary. The circular states this latter feature is only one of the many which the atove has over others of its class. The circular is printed in black and red, and makes a decidedly attractive advertisement.

THE FRONT RANK STEEL FURNACE COMPANY, St. Louis, Mo, are preparing their exhibit which will appear in the St. Louis Exposition, which opens early in September. The exhibit will be exceedingly attractive and is expected to surpass any of their previous efforts.

THE ENTERPRISE FOUNDRY COM-PANY of Rochester, N. Y., are introducing to the trade a new radiator known as the Columbia. It is so made as to produce satisfactory results in operation, the claims being made that its use effects a saving in fuel bills and that "it utilizes heat which with other radiators is wasted" It is well made in all its parts, the flues taking the cold at in at the bottom and discharging it in a highly heated condition at the top.

Buck's Stove & Range Company, St. Louis, Mo, are determined that the trade shall not forget that they are the manufacturers of "Buck's stoves and ranges." With this purpose In view they have secured a very attractive sign which will be placed on the windows or doors of the merchants handling their goods. The sign is in the shape of their trade-mark, with the word "Buck's" in gold leaf and "stoves and ranges" in silver and robin's egg blue. These signs will be sent to the traveling men representing this concern and by them placed in position. The signs are imported, and as it takes considerable practice to correctly place the sign on glass, they have adopted this method so as to secure the most satisfactory results.

L. B. JONES, successor to the Security Gas & Vapor Stove Company of St.

(Continued on page 75).

# TRADE REPORT.

### The Iron Market.

The general tone of the market denotes improvement, which, however, is more in the volume of business than in prices. Less and less is being heard of the scarcity of Coke, and, to judge from the rate at which the furnaces west of the Allegheny Mountains are going in, the supply of Bessemer Pig promises soon to be ample.

Chicago has been active in the Billet market, closing about 18,000 for delivery in its own district, and taken some orders further East. Some business has been done in Pittsburgh for September and October delivery at \$16.85 @ \$17. The demand appears to come largely from Rod mil's which have made some sals to Wire works at a shade under \$24, sellers' mill. The Wire Nall factories and Barb Wire works are starting up again. In the East prompt Soft Steel is still source.

Raw material is certainly cheap. Reports have it that Messba Ore has been effered below \$2.25, lower lake ports.

Pig Iron.—The quantity of orders coming up in the New York market continues very small. We quote standard brands \$12 50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25

Philadelphia advices indicate a better demand for Pig Iron in that market, and sales can be made with less pressure than for months past, showing that consumers need material and that the supply is not out of proportion to the demands. There is not enough in it, however, to warrant predic ions of any material change in prices, all that can be said is that there is a broader market and prices are steadier. General quotations for Philadelphia or nearby deliveries are about as follows:

Standard No. 1 Foundry X	\$12 50 @	\$13.00
Standard No. 2 Foundry X	11.50 2	-1200
No. 2 Plaio	10.75 @	11.00
No. 1 Soft		11.75
No. 2 Soft		

The movement of local Coke Iron in the Chicago market continues up to the average of the past two or three weeks. Shipments are very heavy and the trade seems rapidly getting back to its normal condition. Southern Coke Iron is selling only in carload lots, but the demand for these is improving. Quota tions are given as follows for cash:

Lake Superior Charcoal	\$14.25 @	\$15.00
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10,00 @	10,25
Local Coke Foundry, No. 8	9.50 🚳	10.10
Local Scotch	16.25 @	10.50
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	@	
Southern Coke, No. 2	10.75 @	11.25
Southern Coke, No. 3	10.50 @	10.75
Southern, No. 1, Soft	10.75 @	11 25
Southern. No. 2, Soft	10.50 @	10.75
Tennessee Charcoal, No. 1	@	
Tennessee Charcoal, No. 2	a	
Alabama Car Wheel	17.50 @	18.00
Jackson County Silvery	15 25 @	16,00
Other Ohio Silvery	14.25 @	14.50

From the Pittsburgh district our reports show that the supply of Bessemer Pig is increasing and while no actual burnt out.

decline in prices has occurred, the tone of the market is weaker. Foundry Irons show no change, the demand being very light, but the supply is also limited to some extent and prices are fairly strong. Quotations are given as follows:

No. 1 Foundry......\$11.75 @ \$12.60, cash No. 2 Foundry.......10.75 @ 11.00 "

Our Cincinnati agent writes as follows: There has been considerable increase in the demand for Southern Pig Iron during the week, partly from consumers in this district, but largely from the Pittsburgh and Eastern districts, to be converted into steel and other finished product. The sales were in lots ranging from 100 to 500 tons, and in some instances reaching 1000 tons, but the demand was quite freely supplied at pre vious prices, and while the aggregate sales were satisfactory in volume, it acems to be considered doubtful whether they will keep up very long, for it is ex-pected that the free offerings of the Northern furnaces will quite fully supply the demand in some districts, but for the present and immediate future there will doubtless be wanted all the Iron which the Southern furnaces have the capacity to turn out. Soft No. 1 and No. 2 Foundry grades are still wanted in excess of the supply, although there is much more than there has been. Quotations are as follows:

Southern Coke, No. 1	10.75
Southern Coke, No. 2 9.75 @	10,00
Southern Coke, No. 3 9.25 @	9.5√
Ohio Soft Stone Coal, No. 1 14.50 @	15.50
Ohio Soft Stone Coal, No. 2 14.00 @	14.50
Lake Superior Coke, No. 1 12.50 @	13.00
Lake Superior Coke, No. 2 11.50 @	12.00
Hanging Rock Charcoal, No. 1., 16.00	17.00
Hanging Rock Charcoal, No. 2., 15.50 @	16.00
Tennessee Charcoal, No. 1 13.00 @	<b>13.</b> 50
Tennessee Charcoal, No. 2 12.00 @	$12.5^{\circ}$
Standard Southern Car Wheel 16.25 @	17.00
Lake Superior Car Wheel and	
Malleable 15 25 @	15 75

The local demand for Pig Iron in St. Louis is reported as showing a steady increase and sellers are in receipt of inquiries which indicate a continuance of the present activity. As the situation now is there are no large stocks of Iron on hand, and sufficient orders for future delivery are already secured to prevent any accumulation of Iron for the balance of the year. Prices are well maintained and there acems no immediate prospect of any change in either direction. A steady market is anticipated and will likely result. We quote as follows for cash, f.o.b. cara Sc. Louis. Quotations unchanged:

WALES & HAMBLEN COMPANY, organized at Bridgton, Maine, for the purpose of manufacturing, buying and selling tinware, woodenware, iron, copper, steel, z'nc. &c., has filed certificate. Capital stock, \$10,000, of which \$10,000 is paid in.

THE MOUNDSVILLE MINERAL WOOL COMPANY, Moundsville, W. Va., will rebuild their plant which was recently burnt out.

### Metal Market.

Pig Tin .- Prices have been adjusted to the new free of duty basis, and considerable business previously in abey-ance has been completed. Consumers have been purchasing more freely during the week to supply their pressing wants, stocks in their hands being very scant. As the bulk of the orders was for prompt delivery, jobbers and dealhave in some cases been hard put to it to supply requirements, as the great rush of business at the Custom House since the change of tariff has prevented their being able to draw out their bonded metal under several days' notice. Arrivals continue free, and the s'ock in first hands here has increased to probably the extent of 300 tons thus far this month. Prices are firm at the lower rates. Jobbers now ask for small parcels of Straits Pig 18¢ \$7 lb with an advance of about 1¢ on Bars. Probably these figures will be further reduced within a few days.

Copper.—The best efforts in the direction of s'imulating business have been slimly rewarded. Home consumers, as a rule, are well supplied and exporters have had no new important orders recently. In fact there has been little movement outside of deliveries on old contracts. Prices are somewhat variable for large lots, but are generally unchanged on small orders on a basis of  $10\frac{1}{2}\phi$  for Lake Superior Ingot. Jobbing business in both Ingot and Sheet Copper has been very moderate, but a rather better inquiry for the latter material is noted.

Pig Lend.—Under the influence of the lower duty prices have receded to about 3 30¢ for wholesale lots of Common Western, delivered in Saptember or later, 34¢ @ 3½¢ being asked for moderate jobing quantities. Only a moderate business has been effected, however, and the demand has not shown the degree of spirit that might reasonably be looked for in view of the exceedingly low prices. Possibly buyers are hoping for cheap foreign Lead later on. Manufactured Lead is also quiet.

Spelter.—Buyers are very indifferent, and it is the exception that they take more than they need for current use. Prices for small lots remain unchanged on a basis of about  $4\frac{1}{3}\phi$  for Western, with the usual premium for fancy brands.

Sheet Zinc.—Prices are weaker, 5¢ \$\pi\$ lb being the outside asked for 600 lb casks, and 5\pi\$¢ for smaller quantities. The demand is moderate.

Tin Plates —Several good sized contracts were closed early in the week for deliveries running through the last quarter of the year, to be imported under the new tariff. The prices were about 75¢ @ 80¢ a box under those current for spot goods. Toward the close of the week the interest in forward business was rather more tame, but still better than it has been for some time past. Coke Tins were mostly in demand in this connection and also for spot delivery, to fill up gaps in canners' requirements. There is some shortage

In special sizes of Cokes, and a consequent temporary advance in values for those Plates. Orders and Inquiries for spot goods have been rather more liberal during the week, but they still partake of the hand to mouth character which has marked them for so long. No buying for stock is likely to occur during September and only a moderate store business is looked for until consumers can get their supplies under the more favorable prices, which will probably follow the reduced duty on Oc tober 1. Prices generally display little change, but they are somewhat more uneven and depend largely on the urgeucy of buyers need, as stocks are There is a very fair current moderate. demand for American Roofing Plates. It is said that the leading importing houses are carrying very large stocks of Plates on the other side, which will be shipped after the middle of September, so as to enter under the new law.

A special cable dispatch from London to The Iron Age, dated August 29, reports on the British Tin Plate market as follows: Tin Plate business has been quieter. Buyers hold back, owing to the attempt of makers to rush prices upward. Ordinary Cokes are held at 3 pence adnary cokes are neid at 3 pence advance over prices that ruled a week ago. Other varieties are also held at more or less advance. Suipments have been light during the week, and there is now a stock of about 286,000 boxes at Swansea.

Sheet Iron. - Mills are busy and manufacturers' agents report an active demand for both Black and Galvanized Iron. Prices are firmer, acout 10 cent advance being asked by jobbers for small lots of Black Sheets over recent For small lots of Galvanized Sheets it is difficult to obtain more than 75 % off, and rumors are prevalent of an effort to be shortly made by the manufacturers to advance the price on this material. The jobbing business in Sheet Iron, though showing a slight improvement, is still very limited.

C. Kirchhoff, agent of the United States Geological Survey, has issued the following preliminary statement of the production of Lead for the first six months of 1894, as compared with the first and second half of 1893:

ha	First of 1894. et tons. 86,772	First hall 1893. Net tons. 95,621 16,305	Second half 1893. Net tons. 101,199 15,037
Total production Refined Lead Refined in Bond	102,382 21,392	111,926 12,230	116,236 22,770
Available for Home Market Contents of Mexi-	80,990	99,696	93,466
can and Cana- dian Ores	9,786	15,860	13,410
From American Sources	71,204	83,836	80,056

Included in the above Desilverized Lead are 2375 tons of Hard Lead produced in the first half of 1894, as com pared with 2401 tons of Antimonial Lead during the first half of 1893.

The most striking feature in the statistics presented is the heavy falling off in the quality of Lead drawn from domestic sources. It proves that the decline in the price of Lead and the prostration of the silver mining industry have very seriously affected the Lead industry of the Rocky Mountain States and Territories.

The stocks of Lead in refiners' hands Those received show a total of 2655 tors on July 1, 1894, as compared with 2468 tons on January 1. The stock of

Soft Lead was 2060 tons in the beginniog of the year, as compared with 1880 tons on July 1, 1891.

### Chicago Report.

Scrap.—Cast Iron is practically the only kind of Scrap moving to any extent. Dealers quote the following list of buying prices, Chicago delivery:

Per r	et ton.	Per Ib
No. 1 Wrought Scrap		
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars.	3,00	
Sheet Iron and Hoops.	2.00	
Plow Steel and Breaking		
CHANGE WING PROPERTY	4.00	
Stock No. 2, such as Shovels, Hoes,		• · · ·
No. 2, such as Buovers, 110es,	3.00	
Old Boilers-whole (Iron)	3.00	
" (Iron)—cut in single	0.00	
Sheets and Rings	5.00	
Old Clas Ding and Roller		
Old Gas-Pipe and Boiler	5.00	
Tubes	0.00	****
Cast Borings		
Turnings		
Horseshoes		51/40
Copper Bottoms		7 €
Copper Clips and Heavy		5 <b></b> ₩¢
Heavy Brass		3 4
Light Brass	• • • • •	21/40
Pipe Lead	• • • •	2 ¢
Tea Lead	• • • • •	2 4
Zinc	• • • • • •	
Rubber	••••	3⅓¢
Amthropita -Rusinessi	n verv d	ulland

Anthracite.—Business is very dull and prices are soft. Carload lots of 12 net tons or over are nominally quoted as follows:

	Egg, Sto.		
	Grate.	and Ch	
Chicago, Ill	<b>\$</b> 5.25	<b>\$5</b> 50	
Milwaukee, Wis	5.25	5.50	
Kansas City, Mo	8.45	8.70	
Council Bluffs, Iowa	8.45	8.70	
Lincoln, Neb	8.6)	8.85	
Sioux City, Iowa	8.45	8.70	
Aberdeen, S. Dak	8.50	8.75	
Dubuque, Iowa	6.55	6,80	
Madison, Wis	6.75	7.00	
St. Paul, Minn	7.75	8.00	
Burlington, Iowa	6.75		
Des Moines, Iowa	8.20	8.45	
Davenport, Iowa	6,55	6 80	
St. Joseph, Mo	8.45	8.70	
Leavenworth, Kan	8.45	8.70	
Omaha, Neb	8.45	8.70	

### Colorado Anthracite.

### COLOBADO FUEL & IRON COMPANY.

00201	-0.00
Denver	\$8.00
Pueblo	8.00
	8.00
Colorado Springs	8.00
Leadville	
Cheyenne, Wyo	10.00
All points between Denver and Missouri River	8.85

THE NEW HAVEN HEATING & PLUMM-ING COMPANY, New Haven, Conn, whose advertisement appears on another page, are directing the attention of the trade to the Ripid hot water heater. An illustration shows the general features of the apparatus.

CONTRACTS for most of the machinery for the new steel plant of the St. Louis S amping Company, St. Louis, Mo., were awarded last week. This new plant was designed by McClure & Amsler, engineers and contractors of Pitts. burgh, and is of modern design through out. The 34 inch Blooming Mill, Table Manipulator and Ingot Tilter, and also a three-high 26 inch double Plate Mill were given to the Frank-Kneeland Machine Company of Pittsburgh. The Fischer Foundry & Machine Company, also of Pittsburgh, received the contract for the hydraulic Bloom Shears and Tables.

ADVICES from St. Louis, Mo., indicate that the demand for Galvanized Iron, Black Spects, Tin and Terne Plates and Sh et Copper in that section shows a very decided improvement.

### CONDITION OF THE

## Hardware Trade.

THE IMPROVEMENT in trade noticed for some weeks past still continues. There is nothing to complain of in the number of orders received, but quantities are smaller than ceived, out quantities are smaller than they ought naturally to be at this season, although larger than they have been for some time past. It is still impossible to get particulars of the effect of the new tariff on the prices of the majority of imported articles. The only change definitely made as yet is in German Cham, of which we print the new prices elsewhere.

Advices from Chicago.—The Shelf Hardware jobbers report a broader Advices from Chicago.—The Shelf Hardware jobbers report a broader demand for goods than at any time since last spring. Merchants are buying only in small quantities, but their orders are more numerous and coming from a greater number of localities. They are not disposed to take calities. They are not disposed to take in stocks to any great extent, yet inquiries are being received more freely for anyloyd lets of stayle and the first of the stayle and the stayle are stayled. quiries are being received more freely for carload lots of staple goods. Some jobbing houses report that their business is larger than at any previous time this year, while others admit that trade is considerably better than it has been, but state that it is not yet up to negligible. A notable improvement conditions. A notable imnormal conditions. provement has taken place in heavy Hardware. The demand for Iron and Steel has grown very considerably within the past week. Inquiries are larger, and quantities taken show some indication among consumers of Iron and Steel to lay in better stocks. The demand for wagon and carriage material, however, is light.

### Notes on Prices.

Wire Nails.-The demand is quite active, and if the same condition prevails for the next fortnight it is generally thought that all the mills will be running full or nearly so. Quotations for carload lots at mill continue at \$1 to \$1.05, but for desirable lots these prices can be shaded, and sales have been made on private terms considerably under these figures. The New York price for small figures. The New Y lots is \$1.20 to \$1.25

Advices from Chicago. - Manufacturers appear to control the situation and are receiving larger orders and hetter inquiries. Prices are continued at \$1.15 to \$1.17\frac{1}{3}, Chicago, for factory lots, while jobbers quote small lots with concessions to heat human. with concessions to best buyers.

Cut Nails. - The improvement in demand previously noted continues without change in prices. We quote as representing the Eastern market 90 to 95 cents for carload lots on dock. The store price for small lots in New York is \$1.05 to \$1.10.

from Chicago. - Business shows a slight improvement in the demand from factory, but there is little disposition to make contracts for future delivery. Prices are continued at 95 cents, Chicago, on 60 cent average. Small lots from stock are quoted at \$1.10 to \$1.15.

Barb Wire .- Now that tariff uncertainty is over a stronger feeling characterizes this market, and makers seem to expect a gradual advance, although there is still some shading of prices. The following are the quotations for Four Point Galvanized, delivered at the points named: Pittsburgh, \$2 to \$2.05; Cleveland, \$2 05 to \$2.10; Cincinnati, Allentown, Chicago, or New York, \$2.20 to \$2.25.

Advices from Chicago.—Manufacturers are in receipt of a good run of mail orders, but they are almost wholly for amall lots. Carload buyers are rare even in localities in which dealers usually lay in large stocks. It is expected that the demand this fall will be principally of this character. Under such circumstances the trade is likely to fall more in the hands of manufacturers than job bers, although the latter report a much better movement. Prices are unchanged at \$2.35 for small lots of Galvanized from stock, and 10 cents off for carloads.

Wrought Iron Pipe.—There is less disposition to press sales. Makers have sold considerable Pipe and their views are firmer than at our last writing.

Bolgiano's Hot Air Gas Irous.— Bolgiano Mfg. Company, 415 Water street, Baltimore, Md., are selling their Hot Air Gas Irons from the following list, which is subject to a discount of 30 and 10 per cent. to the trade:

16	ach.
Kitchen Iron	2.00
Tailors' Iron	
Soldering Iron	2.60
A description of the Vitahon and T	ail.

A description of the Kitchen and Tailors' Irons was given in our issue Au gust 4.

Cordage.—Manufacturers' quotations remain unchanged, but jobbers are en deavoring to force sales of Rope, and are quoting prices from \(\frac{1}{2}\) to \(\frac{1}{2}\) cent below those of manufacturers.

Glass.-During the past week jobbers have experienced a better demand for Glass, and in quantities larger than have characterized orders for some time past. It is generally understood that jobbers control the larger portion of American Window Glass, and that A quality of Glass is becoming scarce. Factory prices have been weak for the past two weeks and are not as yet favorably affected by the slight increase in demand. The demand for Plate Glass continues satisfactory, and manufacturers report new orders. Pittsburgh factory quotations, which are shaded in some instances, are as follows: Single strength Glass, 80 and 20 to 85 and 5 per cent. discount; double strength Glass, 85 and 10 per cent. discount; Plate Glass, Eastern list, 70 to 70 and 10 per cent. discount, according to the size of glass; Imported Window Glass, 80 and 10 per cent. discount.

Old Metals.—Prices for Old Metals have been provisionally readjusted in accordance with the new tariff law. The following quotations represent about the rates now paid by New York dealers:

Heavy Copper № 15 61/4
Light and Tinned Copper # 15 6
Heavy Brass # 16 41/¢
Light Brass # 1b 3% 2
Lead
Tea Lead
Zino # 15 2 ¢
No. 1 Pewter 1016
No. 2 Pewter
Wronght Scrap Iron. # gross ton \$8 50
Heavy Cast Scrap. # gross ton 7.50
Stove Plate Scrap# gross ton 5.00
Burnt Iron gross ton 3.00

Old Rags, Paper, &c. — Business quiet. Deaters' prices, New York delivery, are as follows:

No. 1 White Rags	Ъ	3	@	31/4	¢
No. 2 White Rags					
Mixed Rags	D	, ,		8/10	ř
Blues and 3ds					
Hard Sized White Shavings					
No.1 White Book Snavings	ħ	18/4	(0)	21/81	¢
No.2 White Book Shavings		11/4	a	11/10	ŧ
Light Book Shavings #		, ,	_	5/80	ŧ
No. 1 Mixed Shavings *	D	36	@	1 4	ŧ
No. 2 Mixed Shavings *	D	5/3	0	8/10	,
No. 1 Printed Books #				11/4	
			_	, .	

Ordinary Mixed Books B to 1/4 (4) 5/6
Newspapers # 15 2-5¢
No. 1 Manila Paper # tb % @ 1 c
No. 2 Manila Paper 3 b % @ % c
Bogus Paper
Common Paper
Straw Chips # b
Binders' Clippings
Jute Butts # 15 178¢
No. 1 Jute Bagging b 1 ¢
Mixed Bagging # tb % @ 1 ¢
No. 2 Bagging
Hemp Twine b 13 @ 2 ¢
Manila Rope
Jute Rope
Mixed Rope B b 34 @ 38¢

Old Rubber.—Dealers' purchasing prices. New York delivery, are about as follows:

Rubber Shoes, carloads, de-	43	<b>40.00</b> 79
livered at factory, # b	Ø	.04%
Rubber shoes, less than car-		
loads, # tb	0	.04
Large Hose, # ton	0	15.00
White Wringer Rolls, & D	(0)	.03%
White Syringes, # lb	0	.0337

#### Stove Boards.

The Chicago S'amping Company, Congress and Green streets, Chicago, are making ornamented wood lined stove boards and offer them at the following net prices per doz n. Square, 26 x 26, \$10 20; 28 x 28, \$11 40; 30 x 30, \$12.60; 33 x 33, \$13 80; 36 x 36, \$15. Oblong. 26 x 32, \$14 40; 28 x 34 \$12 60; 30 x 38, \$13 80; 32 x 42, \$15. F.o.b. Chicago, usual terms.

### (Continued from page 72.)

Louis, Mo., is distributing an eightpage pamphlet which illustrates and de scribes Security gas stoves and ranges. These are attractive constructions embodying many interesting features, and with parts so arranged as to render them convenient and satisfactory in operation. One of the more prominent novelties is the Barbecue steak broiler, an illustrated notice of which appeared in these columns not many weeks ago. The circular gives attention to ovens designed for use in connection with gas stoves, and illustrates the Security three burner vapor stove. The last three burner vapor stove. page is taken up with testimonials from a few of those who have used Security gas ranges.

The Michigan Stove Company advise their cust mers to order Garland trade-mark cuts for advertising in home newspapers, so that connection may be made with the local dealer by those who read the leading magszines, religious, secular, agricultural and ladies' papers in which the Garland trade mak is now regularly appearing. The Michigan Stove Company believe in printers' ink and set a good example to the local dealers.

A VERY CLEVER ADVERTISING CIRCULAR has recently come to hand. The circular is a single sheet carrying an engraving of the Capitol at Washington, with a big sign hung across the front portico with the word "Closed," Beneath this most significant picture is the statement, "Now send in your orders for iron stove linings to Newton & Co., Albany, N. Y." This tells all the story of tariff agitation and prolonged and useless legislation and its effects on business interests.

EDWARD E. BARTO, well known to the atove trade from his visits in the interests of the novelty line, is taking a vacation at Salem, N. J.

Congress adjourned on Tuesday, to the intense relief of the country at large.

### CONTENTS.

CONTENTS.	
Editorials: PAG	E.
Cooking by Electricity	53
Improving Trade in the West	13
	53
The Tin Plate Tariff	53
The Letter Box—	
Recording Stove Sales	51
Rausing Water by Compressed Air	54
Location of Fresh Air Inlet	54
Heating Water for Bathrooms. Illus .	54
Construction of a Pantograph. Illus .	55
Makers of Pinking Machines	55
Cleaning Sink Pipe	53
Stoves and Tin	δB
Suburban Plumbing	53
Underground Temperature	56
Steam and Hot Water-	
Home Made Thermometer for Hot	r
Water Heating Apparatus. Iilus	57
The American Air Valve, Illustrated.	58
Pressure Regulator and Returning Con-	
densation	58
Heating Notes	58
Trimo Giant Pipe Wrench. Illus	59
The United Indurated Fiber Company's	
New Works	59
Tin Plates—	20
The Ups and Downs of Tin Plates	60
Record Mfg. Company's Annual Picnic.	60
Scrap	60
European Drainage Systems	61
Plumbing and Gas Fitting -	
Union County, N. J., Plumbers to	62
Organize	02
New York Plumbers' Claim Bake	62
Traps and Vents	63
The Climax Oil Heater. Hlustrated Roofing and Cornice—	1913
The Country Cornice Shop.—XI. Illus.	64
Flashings	66
The Tuller Eave Trough Hunger, Illus.	66
Rusting of Iron and Steel	66
Heating and Plumbing-New Work and	
Contracts	67
The Retail Store—	
American Bread Knife, Illustrated	68
An Ensuccessful Veature	68
Major's Ice Float. Illustrated	68
Memoranda	68
The American Time Recorder. Illus	69
"Hot Blust" Plumbers' and Solderers'	
Furnace, Illustrated	69
Stove Trado Notes— The Local Stove Trade	70
The Schuylkill Valley Stove Company	70
The Perry Stove Company	70
Stoves and Ranges	70
Odd Plates	71
Trado Report— The Iron Market	73
Metal Market	13 13
Chicago Report	71
Condition of the Hardware Trade	74
Notes on Prices	74
Stove Boards	75 50
Metal and Miscellaneous Prices	76
Labor Exchange— Help Wanted	78
Situations Wanted	78

## Metal and Miscellaneous Prices.

### CHICAGO, AUGUST 30, 1894.

<b>T</b> 1	a.1 m. 1 m. 1
Tin-	Coke Plates.—Bright.
Imported Tin Plates-	Elwood,—IC, 14 x 20
Uharcoal Plates.—Bright.	Roofing Plates.
Guaranteed Plates command special	Falm, IC, 20 x 28
prices, according to quality.  Per box.	Ampire, IC, 20 x 28
IC, 10 x 14	Hickory, 1C, 20 x 23 @ 12.50
IC, 14 x 20@ 6 50	1X, 20 x 28
Onliand and IV 10 = 14 @ 9 75	Alaska IX, 20 x 28
IC, 20 x 28.	1X, 20 x 28 @ 17 25
IX. 14 x 20	Westmoreland; IC, 14 x 20
RelynGrade   1X, 12 x 12,	IC, 14 x 20 . \$6.00 IC, 20 x 28 . 12.00 Elwood:
1C, 10 x 14@ 6 25 1C, 12 x 12@ 6.25	IC, 20 x 28 \$11 50
Allaway Grade, 1C, 12 x 12	Kenwood: 1C, 20 x 28\$11.50
1C, 20 x 28@ 12.50	Furniston: 1C, 20 x 28\$11,00
(1X, 20 x 28, 6 15.20	l Juno:
Coke Plates—Bright. Per box.	IC, 14 x 20       \$5.75         IC, 20 x 28       11.60         Illinois, Old Method:       IC, 20 x 28       \$17.00
#8666 Coke—IC, 10x14.14x20@\$5.60	Illinois, Old Method:
### Doke TO, 10x14,14x20	E. L.: 1C, 20 x 28\$12.50
	1C, 20 x 28\$12.50   Jessle :
20 x 28	1C, 20 x 28
	Resquared, IC, 14 x 20 \$9.50
Charcoal Plates.—Terne.  Quaranteed Plates command special	Resquared, IX, 14 x 20
Fices, according to quality.	Scott's Extra Coated, Stamped and
IC. 14 x 20 \$5.50 20 x 28 11.00	Jessle: 1C, 20 x 28. \$12.00 Scott's Extra Coated, Stamped and Resquared, IC, 14 x 20. \$9.50 Scott's Extra Coated, Stamped and Resquared, IX, 14 x 20. 11.00 Scott's Extra Coated, Stamped and Resquared, IX, 14 x 20. 12.00 Scott's Extra Coated, Stamped and Resquared, IX, 20 x 28. 19.00 Scott's Extra Coated, Stamped and Resquared, IX, 20 x 28. 22.00 Neville, Stamped, IC, 14 x 20. 7.50 III. 20 x 28. 12.50 III. 20 x 28. 12.50
20 x 28@ 11.00 IX. 20 x 28@ 14.00	Neville, Stamped, IC, 14 x 20 6.25
Worsester Brand and equal. → 11.00 12.5	" " IX, 14 x 20 7.50
IC, 20 x 2812.00 @	Taylor's Gld Style, IC, $14 \times 20$
IX, 14 x 20 7.50 @ 20 x 2815.00 @	
Tin Boiler Plates.	Taylor's Old Style, IC, 20 x 28 (Stamped and Resquared)19.00
Per box of Per box of	Taylor's Roofing, IC, 14 x 20
100 sheets. 112 sheets.	Taylor's Roofing, IC, 20 x 28
XX, 14 x 28 14.50 14.50 X, 14 x 81 14.50 15.80 XX, 14 x 81 16.50 17.50	Columbia, IC, 14 x 20 (Stamped) 7.25
XX, 14 x 81 16.50 17.50	" IC, 20 x 28 (Stamped) 14.50
Per box of 56 sheets.	IC, 20 x 28 (Stamped)13.50
X, 14 x 56 29.50 16.60 XX, 14 x 56 82.50 18.20	" IC, 20 x 28
X, 14 x 60	Knoxali, IC, 14 x 20 6.25 
20.80	Globe, IC, 14 x 20
American Tin Plates.	Miami, IC, 14 x 20 8.00
Charcoal Plates.—Bright.	Taylor's Old Style, IC, 20 x 28  (Stamped and Resquared) 19.00  (Sylor's Rooding, IC, 14 x 20  (Stamped and Resquared) 28  (Stamped and Resquared) 28  (Stamped and Resquared) 28  (Stamped and Resquared) 14.60  (Stamped) 14.50  Maple, IC, 14 x 20 (Stamped) 14.50  Maple, IC, 14 x 20 (Stamped) 15.50  Willow, IC, 14 x 20 38  Willow, IC, 14 x 20 38.00  Knoxall, C, 14 x 20 6.05  Knoxall, C, 14 x 20 6.25  Globe, IC, 12 x 20 6.25  Globe, IC, 12 x 20 6.00  Miami, IC, 14 x 20 6.25  Miami, IC, 14 x 20 6.25  Miami, IC, 14 x 20 6.20  Miami, IC, 14 x 20 6.20  Miami, IC, 14 x 20 6.20  Miami, IC, 14 x 20 6.00  Miami, IC
Florence.— IC. 10 x 14, 12 x 12, 14 x 20, \$6.50	" (Redipped), IC, 20 x 2817.00 Old Process:
IC, 10 x 14, 12 x 12, 14 x 20\$6.50 IX, 10 x 14, 12 x 12, 14 x 20 8.25 Palma.—	IC, 14 x 20
10, 10 x 14, 12 x 12, 14 x 20\$6 75	1C, 20 x 28
IO, 10 x 14, 12 x 12, 14 x 20. \$6 75 IX, 10 x 14, 12 x 12, 14 x 20. 8 75 Each extra cross \$2.00 and 20 x 28	1X, 20 x 2822.00
double these prices.  Brilliant, Tissue Packed, IC, 14 x 20.\$9.25	Old Process:     1C, 14 x 20     9.00       1X, 14 x 20     11.00       1C, 20 x 28     18.00       1X, 20 x 28     22.00       1K, B. L., Old Style:     7.75       1X, 14 x 20     9.25       1C, 20 x 28     16.50       1X, 20 x 28     18.50       1X, 20 x 28     18.50
Boyal extra 1C, 14 x 20	1X, 14 X 20
Royal extra. iC, 14 x 20.     7.25       Merion, IC, 14 x 20.     7.00       Atmond, IC, 14 x 20.     6.50       Mint, IO, 14 x 20.     6.25	1X, 20 x 28 18.50 Continuous Roofing Tin.
Eint, IC, 14 x 20 6.25	Merchant's Tandemper roll, \$3,00

1	Sheet Iron-
00 50	Black.
	Common
50	Common American Redned.  Nos. 10 to 16 \$\psi\$ b 2 3 :10\$ \$\ell 0\$ \$\ell
00	21 to 24 W to 2 4-10# 3 # 21 to 24 W to 2 5-10# 3 1-10#
00	25 and 26 * b 2 6-10# 3 2-10#
50 50	Russia, Planished, dc.
50 7 <b>5</b>	Genuine Russia, all numbers13¢ net.
75 75	dis. 55
25	
00	Galvanized. Juniata or first qualitydis.75@5%
00	Copper-
50	Ingot.
50	Ingot. Lake
	Sheet and Bolt.
00	Discount on old list (except advance on cold rolled pollshed boller sizes to
75	25¢), 25%.
50	Conner Pottome
00	Discount on old list, 25%.
)	Base price, 17%¢, Chicago, with extras
10	Discount on old list, 25%.  Seamless Brass and Copper Tubes. Base price, 17%, Chicago, with extras according to size.  Copper, Bronze and Gilding Tube, 86 %
10	D additional.
50	Brazed Brass Tubing. (100 To lots.) (To No. 19 inclusive.)
ю	(To No. 19 inclusive.) Discount, 40%.
00	Discount, 40%.  Plain, 34 inch up to 2 inch
	Plain, % inch up to % inch
20	Plain, % inch up to 1/2 inch
25 50	Plain, 5-16 inch up to 38 inch
50	Plain, 3-16 inch up to 14 inch 1.00
50	Plain, 2 inch up to 3 inch
ı	Plain, 3 meh and largerSpecial
ЮΙ	Bronze and Copper3¢ advance.
6	Roll and Sheet Brass. (100 to lots.)
50	Discount, 40%.
50	Slab Spelter-
50 75 60	Western Spelter4¢
0	Sheet Zinc-
10 l	600 b casks\$1.75 800 b casks,4.95 Loose sheets5.05
25 50	
ж 1	Lead-
90	Lead
00	Pips
90	Sheet
90	Solder-
00	13¢ Extra Wiping
)0 )0	The prices of the many other qualities
	The prices of the many other qualities of Solder in the market indicated by pri-
75 2 <b>5</b>	vate brands vary according to composi- tion.
50	Antimony-
50	Cookson
)()	Hallett'a11¢

	Wrought-Iron Pipe
	11/ and under, Plain
	1\( \) and under, Plain
	116 and over Galv 57149 Roller Tubes, list Oct. 24 1892 70&10
	Casing, list Nov. 16, 1892
	1892. 4776 Steel Boller Tubes. 2774 Cold Drawn Seamless Steel Tuhing 508
	Cold Drawn Seamless Steel Tuhing503
	Cast-Iron Soil Pipe-
	Cast-fron Soil-Pipe, Tarred; sizes 2 to 6 inches, inclusive
	Other aizes
	Leader Pipes-
	Ahendroth's Galv. Spiral Riveted
	Gordon & Gilbert's Corrugated605 Ritchie's (Oaly, Iron only) Cor'd605
	Ritchie's Spiral Lock Seam, Galv'd56%
	Austin's Spiral Ribbed Pipe 60% Plain Adjustable Elbows 60% James A. Miller Bros. (Galv'd Iron
	omy/ corrugated
	Furnace Fittings-
	Furnace Fittings— Discount from Excelsior Steel Furnace Co,'s list
1	Steel Roofing-
	Perfection\$3.25 square Climax\$3.00 square The Lloyd Spanish Tiling\$4.50 square
	The Lloyd Spanish Tiling\$1.50 square
	Metallic Shingles—
	Metallic Shingles—
	Metallic Shingles—
	Metallic Shingles— Cushman's
	Metallic Shinglea— Cushman's
	Metallic Shingles—  Cushman's
	Metallic Shingles—  Cushman's
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	Cushman's
	Metallic Shinglea— Cushman's
	Metallic Shinglea— Cushman's
	Metallic Shinglea— Cushman's
	Cushman's
	Cushman's
	Metallic Shinglea— Cushman's

### NEW YORK, AUGUST 31, 1894.

The following quotations are for small lots.

Aluminum-
No. 1 Aluminum (guaranteed over 98\$
pure), in rolling ingots
8mail lota \$ D, 65¢
100-D lots D 63¢
Ton lots 7 D. 60¢
No. 1 Alum num ignaranteed to be over
98% pure), in ingots for remelting :
Bmall lots ₺ ₺, 63¢
100-b tots
Ton lots 15.6
No. 2 grade (guaranteed to be over 91%
pure Aluminum), cast in logots for re-
melting:
Small lots
100-b lots
Ton lots D, 50¢
Antimony- Gookson * b, 1012@1044
Cookson 1016@1046
Ballett's ₹ B, 956¢
Brass-
Planishednet
Roll and Sheet25@30%
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gouge the Standard.
List April 9, 1894.
Plain Round Tute Post 5
Plain Round Tube. Per D. 10.35
in. up to \$4-in
44-in. nn to 56 in
%-in. up to \oldowder in
14-in.up 10 5-1 1-in
8-16-in.un to ¼ in
34 in.up to % 10 in
Smaller than 16-in
8 in, and larger Special
2 in. to 8 in., to No. 15, inclusive, .38)
Copper and Bronze Tubing-
84 % & more than been

_	
Co	nductors-
Corr	ugated. Round or Square-
daivar	nized 60% nized, Locked Joints 60%
Galvar Tin	lized, Locked Joints60%
	Spiral Riveted-
Galvar	Spiral Riveted—
	also Elbows and Shoes; Eave-
Ty	ough Miters: Strainers, Con-
	ictor.
Co	nductor Strainers—See
St	rainers, Conductor.
Botto	pper— ms. Pits and Flats 19¢ # D, net
	Ingot.
Lake.	ia Grade Arizona
Anson	in Grade Casting
Plani	shednet
Sheet	and Belt15¢ % D, net, basis
Tu	bes - See Seamless Brass
Tubes	
Εa	ve Troughs-
Lapor	Rup Joint, Galvanised60&10%
Ea	ve-Trough Mitres-
	Slip Jointlist, net
	-ewoc
T1	Plain Adjustable—
Galva	
	Crimped Tubing-
Re-Tip	ned or Galvanized855
	Stove-Pipe
Buffai	o Four-Piece.
80.78	5 54 6 7 inch, .87 .90 .99 1,20 per dom90 \$

	Elbows and Shoes-
_ '	Flat Orimp, Tin
ĸ	Tin35%
15 15	Galvanised35%
ή¥.	Corrugated.
1%	Flat Crimp.   60%   60
	Galvanized
- -	Round of Square.
٠-	Tin60s
	Galvanized
е	Iron, Sheet-
	Black.
	Common R. G. Cleaned
et :	
· ·	American. American. Nos. 10 to 16\$\tilde{n}\$ \tilde{n}\$
	Nos. 17 to 21 W B. 2.70 3.00
2	Nos. 22 to 24 15, 2.30 3.10#
	Nos. 25 and 28. 4 B. 2.10 3.20
t	Nos. 25 and 25. 4 B. 2.70 3.30e No. 27 4 B. 3.00 3.30e No. 28 4 B. 3.10 3 40e
ls	
LE .	Russia, Planished, &c.
18	Conning Prises accord.
	Ing to assortment # D. 114@1256
	Patent Planished WB, A, 10#: B. 0# 5%
	Craig Polished Sheet Steel ₩ 10 814¢
×	Galvanised.
~	B. B.
at	Nos. 10 to 16
	Nos. 17 to 21 Nos. 22 to 24
	Non 25 to 26
× ×	Nos. 25 to 26
1	No. 28 !*
	No. 29
1	No. 30
-	Lead-
	American Pig3%@3%es
	Rar 4146
\$	Pipe

Tin Lined Pipe
Metal, Expanded—
Manufacturers' list No. 5.  Lathing Fencing, Painted Sheets. 904 Fetting, Painted Sheets. 905 Door Mats, Galvanized. 985 Window Guards, Paneled. 185 Tree Guards, Paneled. 185
Mitres, Eave-Trough8ee  Eave-Trough Mitres.
Paints, Olis &c
Lead, Amn. White, in oil
ipirita Turpentine:
Putty: In barrels and 1/2 hhls
doofing Material, &c.: Asphaltum, Trinidad Refined, \$\infty\$ ton. \$30.00@\$35.00 Asphaltum, Rock, \$\infty\$ ton. \$14.00
Coal Tar Feit, 2 Ply, Wroll 108 sq. ft.
Coal Tar Felt, 3 Ply, ¥ roll 108 sq. ft. \$1.85
Roofing Fitch & bbl

# THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, September 8, 1894.

DAVID WILLIAMS, - PUBLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 Reade Street.
PHILADELPHIA 220 South Fourth Street.
BOSTON146 Franklin Street.
PITTSBURGH Room 509 Hamilton Building.
CHICAGO 59 Dearborn Street, cor. Randolph.
CINCINNATIRooms 22-24 Pickering Building.
ST. LOUISBank of Commerce Building.
CLEVELAND312 The Cuyahoga.

BRITISH AGENCY: The Ironmonger, 42 Cannou street, London, England.

## English Trades Unions and Trades Schools.

The attitude assumed by British organized labor toward the trade and technical schools recently introduced in the United Kingdom is illustrated in a resolution adopted last week at the annual Trades Union Congress, in session at Norwich, England. The resolution was to the following effect: "That this Congress, while admitting that great and good work has been and is still being done by the establishment of technical classes in various localities throughout the United Kingdom. with a view of assisting in the better education of our handicraft and artisan work people, is of opinion that no others than apprentices and work people who are working at the various trades taught should be allowed to attend such classes." This means that, in the opinion of the labor leaders, the benefits offered by schools of trade instruction should be confined to those young artisans who are already under the direction of the trades unions. The schools are State aided and therefore supported by the public at large, but could this resolution be made operative their advantages could not be secured by any young man who is desirous of learning the theory and practice of a useful trade, unless he be already working at the special trade he wishes to study.

### Aluminum.

Aluminum, which a few years ago was little known ontside of the chemist's laboratory, has now come into considerable use in the industrial arts, and with its growing application to ordinary purposes there has arisen a natural curiosity about its properties and the best methods of working it. The special article that appears elsewhere in this issue will have interest, therefore, for many of our readers. It has been prepared by one who is familiar with the metal, and the ac-

count of its properties is clearly and concisely put; comparisons being made with other well-known metals, so that its relative usefulness for various purposes will be readily understood. The information contained in the article on the work of soldering aluminum will be found especially valuable, and judging from the frequent inquiries we receive about soldering the metal, the formula there given for a solder will be very generally appreciated. The difficulty experienced in joining the metal to itself by means of solder has, perhaps, as much as anything else, interfered with its more extensive use; and all of the books about this metal have referred to the difficulty, if not impracticability, of the operation. We are assured, however, by the writer of the article that if care be taken in the application of the solder he describes there will be no trouble experienced in obtaining a strong and permanent union. Though aluminum is already used for many purposes with the most satisfactory result, its many excellent properties warrant the belief that the sphere of its usefulness is destined to be greatly enlarged, and for domestic purposes, particularly, it is likely to come into still more general application.

### Outside Business.

"This is the last time I will ever interest myself in any outside business, and I will never loan another dollar to any one, be he friend or stranger, unless good collaterals are placed in my hands." The speaker was a middle aged Hardware jobber, who had just been telling us of his losses in connection with a recent failure of considerable prominence. "I had unlimited confidence in the honor of the man at the head of that concern," he continued. "I stood by him long after his credit was gone with others, and as a consequence I am just so much more a loser. I have had my fill. Hereafter I will attend strictly to my own business, and the man does not live who can get a dollar from me, except on good collateral. It does not do to bank on friendship, honor or confidence. Good collaterals will be good enough for me hereafter." Almost every snccessful man sees the hour when he is ready to say, and does say, just what we heard above. If he is making more meney than he needs in his own business his instinct leads him to use his surplus elsewhere at a profit. He has his favorite investment stock, or quietly buys notes or loans to others. For a time dividends come along pleasantly, loans are repaid with interest and he is pleased at his ontside income. Then come offers to take stock

in new enterprises, always pictured in the most rose colored light, or a man in whom he has unbounded confidence wants a little help. The monied man subscribes for some stock, he lends money to his friend, only to find that it is necessary to take more stock or lend more cash to save what was first invested, and in the end to lose all. Then follows the reaction. He is ready to vow, and does vow, that never again will he take stock in anything, and will lend no money unless secured by Government bonds. He usually keeps his vow, and the result is that a great many good things pass by his door, but they tempt the man that has not yet had this experience, while he pities the conservative fellow down the way who turned his face against so good a thing. In this way history continually repeats itself. Not all the new ventures, however, prove failures, nor is every loan a loss. If they were business would come to a standstill. The new company that Conservatism would not even consider is not infrequently the one that enriches all who entered it at its commencement, and the effect of one such brilliant success in the business world will ontweigh many failures. Yet the constant experience of the vast majority of successful business men is embodied in the homely old proverb, "Shoemaker, stick to your last!"

### The Forest Fires.

An enormous amount of damage resulted from forest fires in Northern Minnesota' and Wisconsin during the past week. A number of flourishing towns were wiped out by the flames and valuable tracts of timber land were ruined, the property loss running into many millions of dollars. The most serious part of the dreadful visitation, however, was the great loss of life. Over 700 persons are known to have perished, but it is believed that many others were lost of whom no trace may ever be found. It is one of the greatest calamities of modern times, causing a thrill of horror throughout civilizatiou. Now that such fearful consequences have resulted from earlessness concerning the inflammable nature of great forests in times of drought, it is likely that State legislatures will adopt measures to avert danger from this source. Public opinion favors the compelling of owners of timber lands to employ a forest patrol to remove dead trees, clean np underbrush and watch earefully for the first outbreak of fire. This should be done for the preservation of the own property, but it is most imper tively needed for the protection of f lives and property of those who live the vicinity of such forests.

# THE LETTER BOX.

### Wants Protection from Freezing.

From T. K. S., New Jersey.—Will some reader of The Metal Worker, who has had experience, please give me the benefit of it on protecting pipes from freezing? I have a 2-inch pipe that feeds a 1000 gallon tank resting on a trestle exposed to a full sweep of the wind. The pipe is 51 feet in hight and I do not want it to freeze. I had thought of wrapping with thick hair felt, then inclosing it in a box about 12 inches aquare and filling in around it with as bestes or minerel wool but am not sure beatos or mineral wool, but am not sure that this protection would prevent freezing in zero weather, and that is why I ask the readers for the information that they have gained from experience. I can get gas 50 feet from the pipe and had thought of getting a water heater and burning gas to run it, then running a 1-inch pipe up alongside of the 2-inch pipe, using a return bend and an air valve at the top and returning to the water. If some one can give me a less expensive method of insuring the pipe against freezing I shall be glad to hear

### Girls in the Tin Shop.

From FATHER, Pennsylvania. - I have sometimes heard men wish their girls were boys, and being more than proud were boys, and being more than proud of my daughters I concluded I would tell what my girls do for me. Ever since they were little things and when I used to do all my work with the help of an apprentice, they and their mother have attended the store and done errands in town and have gone to the city to order and buy goods till they underatood the trade as well as boys. They have had the best education our seminary could give them and are prime housekeepers as well as needlewomen, pianists and have some talent for art. Notwithstanding, one of them can mend thrware as well as I can, and has accommodated many a customer in that It is needless to say that her bench is kept in prime order, for occaalonally she does a little job now, though I run three men and a boy most of the time. One is a stenographer and keeps my books, and another is general stockkeeper, saleswoman and complaint clerk. They both read and understand The Metal Worker, and the complaint clerk is a very wise little woman. She can test a chimney as well as anybody and find the cause that prevents a stove from baking and give orders for the remedy. She can examine a range or furnace and note the repairs needed as well as I can. Her pony carriage is always ready to start to investigate what is needed to fill an order, and that lit tle horse earns his oats. A third sister thinks it great fun helping these two and now is a great help when they take a housekeeping bent, which naturally breaks out at times so strong that either their mother or I have to stay at the store. The complaint clerk learned through experience that a great deal of time was lost in going to see what was needed to fix a range, a heater, a leak, &c., so she got out the following blank,

which they insist shall be turned into the office all filled out. The blanks are alphabetically arranged for future reference after the charge is made from the time and material record on the other side, and any of your readers can appreciate that this is valuable informa-

NAME John Smith Address 18 Blank street

DATE....

ORDER. Wants range fixed, grate, boiler leaks, spout down. DESCRIPTION OF PROPERTY. House Frame Roof Tin and Slate GUTTERS Valley and hanging Bathroom Copper tub, siphon closet, wash stand, exposed nickel fillings. Kitchen No. 822 Grand range, water back, duplex grate, double oven, pattern, 1890, 5 1-2 pipe. HEATER, Hero, No. 247, combination hot air and hot water, cold air tube. Partition flues. no flue heads, 6-inch smoke pipe, also a No. 36 tested brick set heater with drums, 7-inch

### smoke pipe. WORKMAN'S REPORT.

Wm. Jones.	Day ending Jan. 14.		
Property.	Kind of work and material used.		
J. Smith.	Grate, 15 pounds. Set of bricks and putting in.		
14	New joint on boiler con- nection.		
şa.	Four tin straps putting up conductor pipe.		
	Property.  J. Smith.		

I can testify that it is worth many times what it cost, and as the men forgot, or neglected, or were at first opposed to this work, it cost those little women a lot of patient labor. Now a man will growl if he has to go to a job of which they have no account, for he is all at sea, but seldom fails to bring home a full record. When a workman is sent out his name is written on one aide and the address of the customer on the other, with the order for what is to be done. If it is an old customer who wants his range fixed, a new grate and bricks are sent If they are in stock, and often that is all that is needed, pleasing the customer and saving time. talking with a salesman they got a hint for this scheme:

FALL APPROACHES.

Is your furnace ready to have a fire started? Does it want cleaning?

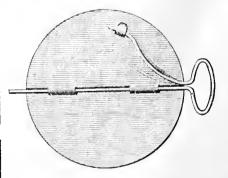
A new grate or fire pot?
Is the smoke pipe choked or rusted out?
Is the fire chamber of your range prepared to stand another winter?
Does it need the flues cleaned, the grate replaced and the lining renewed, or any new parts?

Is your roof in good condition?
Does it need repairing to stand the coming winter?
Should it be painted?
Are your pumps in order?
Do they need new leathers?
Everybody will be in a harry for what they want a little later. We will try to accommodate all, but shall fail. Wo have time now. If you are away send us the keys of your house. We will be responsible.

The girls are sending out this circular to everybody in town. It is very suggestive and printed in nest style, just the size to go in an envelope, and inclosed with the circular is a business card after their ideas. They are all mailed with an addressed postal card inclosed, and sealed with the instruc-tions "please forward." They will reach people at Luray, Niagara Falls, Lake George and elsewhere, and as the scheme has been tested by them they expect to be busy. You can imagine I do not work as hard as I once did, nor any harder than if my girls were all boys. It used to be my business, but now I hear it spoken of as ours, so that I appreciate that I have some partners who run it. They have made a great auccess of business, and their office and surroundings could not be more to the liking of any refined lady if they kept a millinery shop. This letter is a secret from them and their mother, from whom I could never keep a secret, and I wonder how they will like it.

### Hot Air Pipe Damper.

From A. L. Burtis, Lockport, N. Y. -I inclose a sketch of a neat and cheaply made hot air pipe damper that may be



Hot Air Pipe Damper.

of interest to your readers. I make them from scraps of galvanized iron, using No. 10 wire for the shaft or spindle, which being made in the shape illustrated gives it the proper bearing on the damper to prevent twisting, and at the same time makes a tight bearing on the damper to prevent twisting, and at the same time makes a tight bearing in the hole through the plpe which holds it in any position. The spindle draws out and is easily placed in the plpe. You will notice that there are no rivets or extra pieces used in making the damper. I will be glad to have you publish it for the benefit of your readers if you care to do so. readers if you care to do so.

### Furnace Estimate Blanks.

For the following furnace estimate blank we are indebted to B. D. Dug gan, Chicago, who has found them very

satisfactory in use. The blank, as herewith presented, has been reduced from its original size, which was 9 x 18 inches, giving plenty of room for writing and figures.

	Estimate for Heating	Chicago,	
Owner,			
Architect,			
Richmond Furnace,	No \$ Cartag	e, \$ Foundation. \$	
Smoke   Size, Pipe,   No. Feet.	Elbows, Size,	Dampers, (Size,	-
			_
Round Hot Air   Size, Dampers,   No.			
	S, { Size,		
Register Boxes, wit or without Collars.	j		
Boots. ≺			-
Lining Tin,	Zinc,	Sheet Iron,	
Registers, {			
Register (Size, Borders, (No.			
Register (Size, Faces, (No.			
Extras, All Kinds,			
Freights,	Cartages,	Car Fares,	
l'inner's Time,	Helper's Time,	Expenses,	
Mason's Time,	Helper's Time.	Expenses,	
Carpenter's Time,	Helper's Time,	Expenses,	-
Brick,	Mortar,	Cement,	·
Superintendence,	Extras for Mishaps	<u> </u>	
	Total Cost,		

### Galvanizing Dross.

From T. E. S., Mich.—I have had some experience in galvanizing job work and have met with a great loss of metal from some unknown reason. The metal accumulates at the bottom of the pot as a sort of slag or dross. This has to be removed after a certain amount accumulates, or it will stick to the work in lumps and sal ammoniac will not remove it. I would like to be informed regarding the cause of and remedy for this trouble.

Answer. - During the process of "galvanizing," as the act of dipping iron in melted zine is called, the melted zine takes up a portion of the iron and forms an alloy, which, being heavier than zinc, settles to the bottom of the kettle. This alloy is caused to a certaln extent by the action of the melted zine on the surface of the kettle, and also from the amalgam formed when the iron articles are dipped, as the amalgam drips back into the kettle. As the dross contains from 3 to 10 per cent. of iron and other impurities, and from 90 to 97 per cent, of zinc, the loss involved is quite serious, amounting in some instances to from 25 to 30 per cent. While the dross is inclined to settle to the bottom of the kettle the dipping of articles causes it to be mixed with the zinc, and it is thus brought in contact with them, causing a rough surface. When the zinc becomes so filled with dross that it will not work properly, sufficient time is allowed for the dross to settle to the bottom of the kettle, when it is removed by means of a perforated iron ladle and cast in cakes for convenience in handling. The dross can be melted in a separate kettle at a high temperature, when it separates into two portions, the top being tolerably pure zinc. The lower portion can be again cast into cakes and sold to the refiner.

### Polishing Tinware.

From READER, Seattle, Wash.—Please inform me through the columns of The Metal Worker of the best methods in use by manufacturers for cleaning pieceā tinware.

Answer.—For cleaning or polishing pieced tinware, a soft cloth and refined whiting can be used, or the whiting can be used with a buffing wheel made of cloth.

### Token Money.

From G. F. W., Windsor, Conn.—Can you or any of the readers of The Metal Worker inform me what the coin or medal is which I will try and describe? It is made of copper, the size of an old fashioned copper cent. On one side is the picture of a man threshing grain with a stail, and the inscription "No labor, no bread." On the other side is the picture of a man plowing with two oxen tandem, and the inscription, "Speed the plow. Halfpenny token."

Answer. —The coin which our correspondent describes is a Canadian halfpenny token, issued for local circulation many years ago, and was at that time current as money. It was not, however, recognized by the Government and, therefore, was not actually legal

### Recording Stove Sales.

From L. P. & S., Hartford, Vt.—We notice the inquiry of "S. T. T.," in The Metal Worker, August 18, and the

In plates, rods and triangles its tone is equal to that of steel, but has a longer term, ending with a reverberation or resonance; in bells it has a brilliant tone.

By slow cooling from a red heat it becomes elastic or apringy, and may thus be converted into springs. Cooling quickly from just below a red heat, or by quenching in water, makes it very soft, analogous to the water annealing of steel. This is the best method of

Sales 25		1894.			27
Aug.   29	93-20 F. & W. Co., range.  Res. & Shif, W. FD. C. grate	John Doc,			
	Fuller & Warren Co.,  Troy, N. Y.	Hartford, VI.  Rec'd old Stewart and gave	AG	RX -	42 00
	1890 pattern	one piece and ellow of pipe.			
	1			-	
		,			
Sales				<del>-</del>	
32 S			[]		

reply of F. M. Borden & Bro., August We have kept a record of our stove sales for the past 24 years, using a journal ruled blank book with index, 84 x 10, ruled double column, which we further rule, as shown by the sample page sent. We have found it answers all purposes for a dealer in a country town.

### Aluminum and Its Properties.

BY Q. D. HISCOX, M. E.

Aluminum is now advancing rapidly to the front as a useful metal and, with its receding price, promises to soon come into general use in many manufactures where its peculiar properties make it a most desirable alloy, or its beauty and lightness give it a favorable precedence. It is now on sale by the silver and fancy goods trades for table ware, drinking cups, trays, wire basket work, bric-a brac and jewelry; is used in cab, carriage and harness trimmings, race horse shoes and the more substantial structure of voyaging boats.

The novelty of a violin of aluminum has been exhibited before the American Association for the Advancement of Science. Its sonorous qualities have recommended it for sounding boards of pianos and other musical instruments; it not being affected by moisture, its tonic condition is uniform.

Its lightness makes it a contribution in lightening the burdens of surveyors and engineers, it entering largely into the composition of their instruments. It is also agitating mliitary circles in Europe and the United States for lightening the soldier's equipment; canteens, buckles, cartridge boxes and gun trimmings of aluminum tend largely to lessen the military load.

annealing in working aluminum under hammer, rolls or drop press; or where convenient it can be rolled, spun or hammered at a temperature of 250° to 300° F., without annealing. It can be welded by electricity like other metals. Its malleability ranks next to gold and silver, it may be rolled and drawn to silver; it may be rolled and drawn to the thinnest sheets and wire, spun and raised in all forms as easily as copper; beaten into leaf like gold and silver for decorative work. As less only  $\frac{1}{40000}$  inch thick it is impermeable to light, and shows no color like gold leaf by transmission.

A singular coincidence in its comparative weight and strength with steel is in the equal length of a suspended bar to support itself by tension, which in each case is about 23,000 feet; the sectional areas of the two metals for equal strength corresponding inversely with their relative strength and weight per cubic inch or foot. The tensile strength of sluminum in rolled bars is 26,000 pounds per square inch, and its weight 163 pounds per cubic foot. Its elastic limit in tension is 14,000 pounds per sausre inch of section. The range of expansion by heat is 0.0148 inch per 100 feet in length for each degree F.; being greater than brass and less than zinc. Its electric conductivity varies slightly by the observation of different experimenters, probably owing to variation in the purity and density of the metal, the average being 0.49 as compared with copper 100.

It is so slightly attacked by nitric, sulphuric or sulphurous acid that it makes an excellent metal for valves, cocks, fittings and pipe for conveying or holding these acids, either pure or attenuated with water. Hydrochloric scid and caustic alkali are ready solvents of this metal, while the vegetable acids have but a slow action.

The shrinkage in casting is much larger than in brass, being 14 inch per foot in length. In melting it becomes at first pasty at a low red heat and finally fluid at about 1200° F. Black In melting it becomes lead (plumbago) crucibles should be used for melting, although for small quantities crucibles cut from anapstone are good; Hessian or sand crucibles may be used by lining them with a paste of plumbago or powdered charcoal and molasses baked on. Any quantity up to one pound may be readily melted in a small forge or coal stove. Com-mon sait is the only flux used, but not Comaiwaya needed, except to protect scrap melting. Molds for ingots may be melting. Molds for ingots may be made of iron or soapstone, but for pat-tern work should be in fine molding sand, such as is used by brass founders, the molds to be partially dried on the surface after dusting with ground charcoal and blowing out the excess of dust with a hand bellows. Thorough venting of the mold and quick pouring as with small brass work will bring out sharp castings. Aluminum castings are now made by foundries in this apecial line at reasonable prices, so that amateurs and others may be saved the trouble of experimenting to obtain aluminum castings or any of its alloys.

The roiling or drawing may also be avoided, as the prices of rolled bars, plate, rods, sheet and tubes are very reasonable, and small quantities may be purchased as cheaply and of better quality than an inexperienced person can possibly produce the required shape. The trade price for ingots, as detailed in metal quotations, ranges from 60 to 65 cents per pound, while the rolled plates and sheets, in lots of 5 pounds and upwards, ranges from 90 cents to and upwards, ranges from 90 cents to \$3.60 per pound, according to the gauge; sample lots, 10 cents to 24 cents per ounce up to No. 24 gauge; above No. 24 and up to  $\frac{1}{1000}$  inch thick, 30 cents to 40 cents per ounce; sluminum rods,  $\frac{1}{8}$  inch to 1 inch, in lots of 5 pounds and up, \$1.20 per pound; wire, Nos. 6 to 26 gauge, \$1.10 to \$2.09 in quantity or for samples. per ounce: quantity or for samples, per ounce; larger than No. 16, 25 cents; Nos. 16 to 22, 40 cents; Nos. 22 to 26, 50 cents.

Aluminum solder, \$2.50 per pound,

or 25 cents per ounce, melting at about 500° F. A softer and easier flowing solder, melting at 400° or less, at \$5 per pound. These solders can be used with an alcohol lamp, or bunsen burner, for small work. A good and casy flowing solder may be made of an alloy of 5 parts cadmium, 2 parts zinc, 3 parts tin—melt the zinc and tin together and then add the cadmium; a amail sheet iron ladle can be used for making the solder, when it may be poured into grooves in a block of wood for convenient use. This solder melts at about 350° F., needs no flux and takes to aluminum by rubbing with a stick of sluminum, or a small spun glass brush, or by rubbing the pieces together that are to be soldered after the solder has taken on one of the pieces. The price of cadmium is \$1.35 per pound, or 10 cents per ounce.

Aluminum alloys with copper and iron, as aluminum bronze and mitis metal have been long known and used. An alloy of aluminum with 10 per cent. of tin makes a beautiful white metal, easily soidered with tin as a soider. An alloy with 10 per cent. of silver makes an excellent metal for table ware, cheaper than aliver, far less liable to tarnish than silver and more brilliant in color than pure aluminum. This alloy is easily soldered with the addition of 5 per cent. of cadmium to a portion of the alloy.

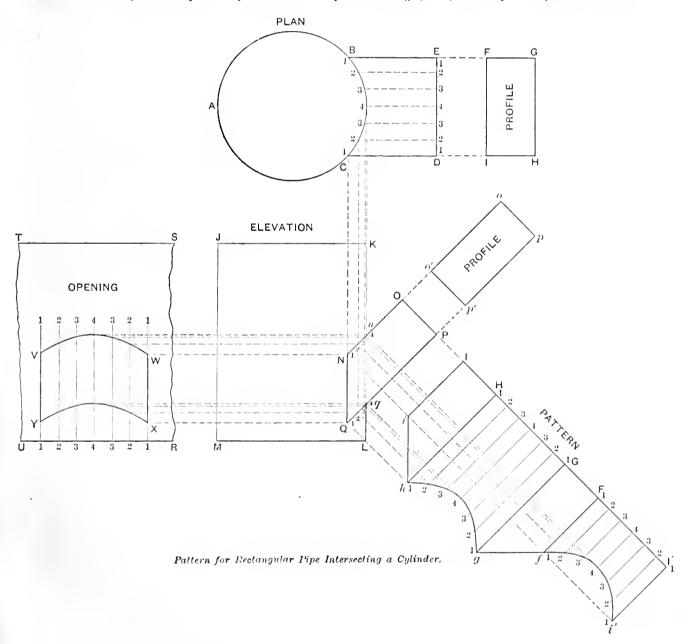
# THE TIN SHOP.

## Intersection of Rectangular Pipe with Cylinder.

From W. M., Brooklyn, N. Y.—I wish to intersect a rectangular pipe and a round drum at other than right angles. Will The Metal Worker please describe method for obtaining the pattern of the pipe, and also of the opening in drum?

Answer.—In the accompanying engraving let A B C represent the plan of P q so a line dropped from point C of plan will cut them, as shown by N and Q. Then  $n \in \mathbb{N}$  Q q is the joint between the drum and pipe, as shown in elevation. For the pattern of rectangular pipe proceed as follows: Divide B C of plan into any convenient number of equal parts, and from these points carry lines cutting E D. Also from the points in C B drop lines cutting Q P

sponding measuring lines, as indicated by the dotted lines. Lines traced through the points thus obtained, as indicated by  $i h g \neq i'$ , will give the desired pattern. It will be observed that I H h i is a duplicate of O P Q N, and that G F f g is also a duplicate, only in a reversed position. The points in h g of pattern are derived from Q g, as the points in f i' of pattern are derived

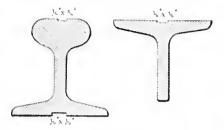


drum or cylinder, and B E D C the plan of rectangular pipe, the profile of which is shown by F G H I. In the elevation, J K L M represents the drum, N O P Q the rectangular pipe, and K n O the angle at which they are to intersect. Draw the end view, or plan, of circular drum in line with the elevation, as shown. Also extend O n and

and NO. On OP extended lay off a stretchout of prefile F G II I, as shown by I I', transferring the spaces in E D to H G and F I', and through the points in it draw the usual measuring lines as shown. Place the T-square parallel with the stretchout line I I', and, bringing it successively against the points in the miter lines N n Q q, cut the corre-

from N n. If the size of the work was such as to render it inconvenient to drop points from the elevation to the pattern by means of the T-equare, the stretchout line I I' could be drawn where convenient, the usual measuring lines erected and the distances from O P to points in N n and Q q transferred to lines of simi-

lar number drawn from the stretchout line. For the pattern or shape of opening in drum, proceed as follows: On L M extended, as R U, lay off a stretchout of B C of plan, and from the points thus obtained erect the usual measuring lines, as shown. Pisce the T-square parallel with M L, and, bringing it suecessively against the points N n and Q q, cut measuring lines of correspond-



Groover and Edger.—Fig. 1.—Cross Section of Groover Bar.

ing number. Through the points thus obtained trace the lines V W and Y X, which gives the shape of opening to be cut in the round drum. Necessary edges to be allowed for joining. If it is not convenient to obtain the shape of opening by means of the T-square, extend the lines from points in C B to M L, and, measuring in each instance from M L, set off the distances from M L to points Q q and N n to lines of similar number drawn from U R. Through the points thus obtained trace the lines V W and Y X.

### Groover and Edger.

From L. M. W., Delaware, Ohio.—I send The Metal Worker a description of some tools that may interest its readers. The groover is made of a piece of T-beam or railroad iron, about 10 feet long, with a slot cut in it lengthwise, \$\frac{3}{8}\$ inch wide and a scant \$\frac{1}{8}\$ inch deep, as shown in Flg. 1. The railroad iron is preferable, as a slot can be cut in the

to make a deep mortiae for the bar, as

shown in Fig. 2.

The bar is held in place by a good wedge which can be loosened and the bar removed when not in use. About 12 or 14 inches in front of the main upright and fastened to it by braces is a rest to sustain the weight of the bar when the outer support is removed. This rest is made of the joist and has a notch in it cut 6 inches deep and as wide as the bar with the bottom of the notch on a level with the mortise in the upright. A hole is bored in this rest so that a bolt can be passed across the notch just above the top of the bar to keep it from jumping, or if preferred a

Where a shop does not have a cornice brake to do the edging, an edger, as shown in Fig. 3, can be easily made on the following plan. The principal trouble with an edger is its liability to spring in the center. It must be made strong. Take two pieces of seasoned oak 2 inches thick, 8 inches wide and 9 feet long and join them together with extra heavy strap hinges. Cover the top side of both pieces with sheet iron that is free from buckles, to prevent wear. At & inch back from the edge, on one piece, fasten a strip of iron & inch thick, 1 inch wide and 8 feet 3 inches long. On top of the first strip of iron fasten another strip of iron fasten another strip of iron fasten

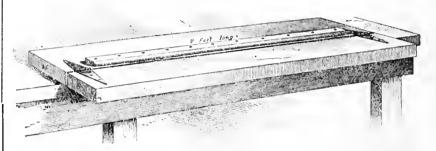


Fig. 3.-Edger Complete on a Bench.

hole can be drilled in the bar and the hole in the rest bored low enough for the bolt to pass through both. The hight of the bar from the floor can be arranged to suit the workman, but about 34 inches is convenient. Two treatles of the same hight, about 6 feet long, should be provided to support the work, or four rods suspended from the ceiling, with eyes in the ends for bars to support the work, can be used. The groover enables galvanized conductor to be made 8 teet long, turning the edges and forming on a cornice brake, then flattening the seam with a mallet in the slot, which leaves the outside perfectly round and the seam can be thoroughly soaked in soldering. It saves time and

inch thick, 1\frac{8}{2} inches wide and 8 feet 3 inches long, with its edge coming out to the edge of the plauk. Holes should be drilled in both strlps about 3 inches apart, large enough and countersunk for 1\frac{1}{2} inch No. 14 wood screws to fasten them securely to the wood. The top strip should be beveled from a round edge \frac{1}{2} inch thick to full thickness \frac{1}{4} inch back from the edge.

If different widths of edges are de-

If different widths of edges are desired on the material to be worked the holes in the under strip of iron may be drilled larger, or # inch in diameter, as

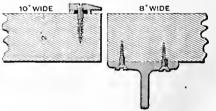


Fig. 4.—Cross Section of Edger at the Center.

shown in Fig. 4, so that by loosening the wood screws the under strip can be drawn forward or pushed back to make a larger or smaller edge, as desired, and the screws tightened again. There is little danger of this part of the edger springing as it will be fastened to a work bench by some means. When in use two bolts at 2 feet from each end are sufficient. To prevent the other part from springing a T beam fastened closed to the edge on the under side with screws 4 or 5 inches apart will be all that is necessary. A handle may be attached to this part about the center for convenience. The extra heavy strap hinges do not shut tight together, and allow the edge to be turned completely over.

Note.—Our correspondent's account of a home made groover bar would have been more useful if he had told how to cut the grooves in the surface. It would be quite atask to cut two 8-foot grooves with a cold chisel, which would have to be done unless the lot could be cut on a machine tool, say an iron planer or a milling machine.

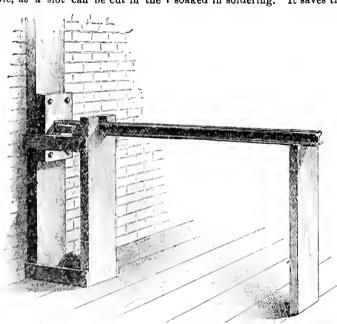


Fig. 2.—Groover Set Up Complete.

opposite side  $\frac{1}{2}$  inch wide and a full  $\frac{1}{2}$  inch deep for heavy material. One end of this slotted bar rests on a movable support, but the other end is tightly secured into a firm upright at the wall of the shop. The upright is a 3 x 10 inch joist fastened at the floor and ceiling with another piece securely belted to it at the point where the bar enters

labor and the conductor presents a better appearance on a building than if made in short pieces. In making the sheet iron work for ventilating shafts, indirect heating coil boxes, furnace supply pipes or any large work, two sheets of iron of full length can be more satisfactorily joined with its aid than in any other way.

# PLUMBING and GAS FITTING.

### The Central Supply Association.

In response to a call issued by John Walker of Detroit the members of the old Association of Manufacturers and Jobbers of Steam Fitting Supplies, together with other firms in the Central States who wish to join them, met at the Victoria Hotel, Chicago, on Monday and Tuesday, the 3d and 4th inst. Mr. Walker called the meeting to order, explained the long period of inactivity of the old association and presented letters from J. D. Abraham, formerly secretary and treasurer, regretting that the fire which destroyed his place of business had also destroyed the records of the association, and he had no means of telling what funds were on hand, but believed that there was not enough to pay his salary. On motion the old association adjourned without date.

After some discussion it was moved and adopted that a new association was desirable. Mr. Walker was made temporary chairman and O. F. Felix of Pittsburgh, temporary secretary. The following persons were present repre senting the firms designated: Geo. B. Hawley, Cincinnati; Mr. Deming of the George Worthington Company, Cleveland; E. H. Foster, Cleveland; John Walker of James Walker & Son, Detroit; O. F. Felix of the Pittsburgh Supply Company, Pittsburgh; Mr. Hibbard of the John Davis Company, Chicago; Mr. Morrison of the A. Y. McDonald Company, Chicago, and the A. Y. McDonald & Morrison Mfg. Company, Dubuque; Mr. Webster of Smith the Walcott-Hurlbut Company, Chicago; Mr. Weist of the Walcott-Hurlbut Company, Chicago; John Wolff of the L. Wolff Mfg. Company, Chicago; Mr. Weir of the Weir & Craig Mfg. Company, Chicago; Theo Abrens E. Of the Abrens E. Theo. Ahrens, Jr., of the Ahrens & Ott Mfg. Company, Louisville; James Harvey of the A. Harvey's Sons Mfg. Company, Detroit; the McIntosh-Huntington Company, Cleveland; Mr. Sullwold of the Western Supply Company, St. Paul; Mr. Lowin of the N. O. Nelson Faul; Mr. Lownin of the N. C. Nelson Mfg. Company, St. Louis; Mr. Whittaker of the L. M. Rumsey Mfg. Company, St. Louis; Mr. Webb of the Albert Webb Supply Company, St. Louis; Mr. Althaus of the Western Brass Mfg. Company, St. Louis; Mr. Fisher of the E W. Fisher Company, Cleveland; Mr. Bailey of the Bailey-Farrell Mfg. Co. Pittsburgh: Mr. Cleveland; Mr. Bailey of the Bailey-Farrell Mfg. Co., Pittsburgh; Mr. Kalvelege of the Hoffman Billings Mfg. Company, Milwaukee; Mr. Wulf of the Robert Rom Company, Milwaukee; Mr. Fowle of the Rundle-Spence Mfg. Company, Milwaukee; Mr. Kettig of the Milner-Kettig Company. Birmingham Ala. J. R. Clow. pany, Birmingham, Ala.; J. B. Clow of James B. Clow & Sons, Chicago; Messrs. Blatchford and Mcflvane of E. W. Blatchford & Co., Chicago; Mr. Boehnken of the Tromas Brass & Iron Works, Milwaukee; Mr. Seelman of the B. Hoffman Mfg. Company, Milwaukee; Mr. Henion of Henion & Hubbell, Chicago; Mr. Sanders of Peck Bros. & Co., Chicago; Mr. Bullock of the Illinois Malleable Iron Company, Chicago; Mr. Young of Snodgrass & Young, Chicago; D. A. Mudge of the J. L. Mott Iron Works, Chicago. Firms represented by prox-ies were the Toledo Supply Company of Toledo, Mansfield Mig. Company, Pittsburgh, and Merkle Bros., Cincin-

A committee on plan for permanent organization was appointed, which later reported a constitution and by-laws, that were adopted. In this constitution the name agreed upon for the association is the Central Supply Association. Its main object is as fol-

lows:
"A permanent organization of jobbers and manufacturers of plumbing, gas and ateam fitters' aupplies for the purpose of promoting more intimate and social relations of members of the same and with the trade, and correcting many evils that from time to time may exist and do exist at the present

The following officers were elected to

President, John F. Wolff of the L. Wolff Mfg. Company, Chicago;

First vice-president, John Walker of James Walker & Son, Detroit.

Second vice-president, Theo. Ahrens, Jr., of the Ahrens & Ott Mfg. Company, Louisville.

Treasurer, O. F. Felix of the Pittsburgh Supply Company, Pittsburgh.
Secretary, Wm. M. Webster of Smith & Webster, Chicago.

Quarterly meetings will be held regularly, the next in order being at Cleveland on the second Tuesday in December. Among the principal objects of the association will be the regulation of credits, and this is taken to mean the annihilation of the "dead beat" plumber in this territory, a consummation most devoutly hoped for by the reputable members of the craft.

### The Use of Lead Pipes for Conveying Water.

This subject may appear to some of our readers to have been completely threshed out, says an English exchange, but it is quite clear that scientists do not think so, for the Chemiker Leiting, which is the leading paper on chemical industries in Germany, recently contained a long article by M. T. Lecco on the use of lead pipes for conveying water. This chemiat ex-perimented with a water which contained iron, calcium and magneslum salts, and had a total hardness of 24.8°, while it held in solution 0.5 gram of corbon dioxide per litre. He observed that the solvent action of the water was greater when the pipes were new than when they were old. But even after three months' constant domestic use the lead pipe gave 0.3 mg. of metal per litre of water allowed to stand 24 hours in it. After three hours' standing a trace of lead was obtained, but in water that had merely run through the pipe no lead could be distinguished. The obvious moral is that, in domestic installations moral is that in domestic installations when lead pipes are used, it should be recommended and possibly notified by placard near the taps that the water should be allowed to run for a few minutes before any is taken for culinary or driuking purposes.

### The Sanitary System of Ancient Rome.

The subject of the lecture in the University Extension course given at Rochester recently, by Professor Burton, was the water supply drainage and public baths in ancient Rome, and was illustrated by a number of views which added to the interest. The following is a brief of the lecture:

The question of the sanitary system of the old Romans may at first sight seem a commonplace and rather trivial one. Such is not the case, however. The Romans, we have seen, showed a remarkable degree of talent in political organization and likewise in gratifying the public desire for amusements. In a majority of ways the subjects of water drainage and baths seem small and of little consequence to the average being. Yet no part of the life of the Romans proves that they were a great and civilized people more than the care that they paid at all times to these subjects. The supply of water for public use, the public sewers and the baths for the populace were provided for from the early days of the city with a care and foresight that were truly surprising.

### The Water Supply.

The water supply of the city of Rome was varied in its extent at different times. Its sources were not the same at different periods in the growth of the city, either. The earliest source from which the city took its supply was the river Tiber. The Tiber was a very muddy stream and annually brought down vast quantities of soil. The river water soon became unfit for use. Wells furnished considerable water in early days. There was little or no rock in the vicinity of the city, however, and the wells held little but surface water. Some few springs existed about the city and the water from these was utilized. Chief among these springs was the one that sprang from the cavero on the Capitoline, where the Mamertime prison was aubsequently built. Claterna were not unknown, and the ruins of several still exist on the Palatine.

### The Aqueducts.

About the third century before Christ the Romans began the construction of aqueducts to bring the supply of water for the city's use from a better though less accessible source. The first aqueduct of any note was built by Appius Claudius about the year 300 B.C. Others soon followed, and before Augustus arose to power five of these great waterways had been completed. After the time of Augustus, and within the ancient period, it is known that six more were built. One was constructed also in the sixteenth century. Of the whole number four are now in use. The combined length of these aqueducts was 360 miles.

#### The Length.

Each had its source in some far away spring, small lakes or mountain stream. The aqueducts varied in length from 8 miles to 62 miles. Several are known to have existed that averaged 40 miles in length. These facts indicate the pains which the Romans took to procure a bountiful supply of pure water for public use. The mountain streams about Tivoli furnished the sources of no less than five of these aqueducts. One of the most noteworthy of these structures was the one that furnished water for the settlements on the Janiculum, on the river bank of the Tiber. This aqueduct was built by Trajan, and brought crystal water from a lake 30 miles distant. The lake is 500 feet higher than Janiculum, and the waterway is still in use. It now supplies the fountains in froat of St. Peter's. also feeds the well-known Pauline fountain on the same eminence. other of the ancient aqueducts that has survived is the one known as "Aqua Virgo." It has its source in a spring 8 miles from Rome. It was built by Agrippa to supply his baths, and now supplies three of the most conspicuous fountains in the Eternal City.

It would be difficult to determine, even approximately, the amount of water that the 11 different aqueducts delivered into the city. Several learned students have undertaken to estimate it, however. One estimate places the amount at 54,000,000 cubic feet per day that was delivered, while another says that 340,000,000 gallons came into the city a day. It is certain that the city had a greater supply of water than any city, sucient or modern, has ever had. Modern Rome, though having but a small amount of this supply, still

surpasses any other city.

### Their Construction.

The squeducts were not constructed in any very complicated way. The system of arches upon which was placed the waterway is familiar to all. early squeducts were constructed under ground. Tile or lead plpe was used. It was difficult to make these pipes strong enough and still more difficult to keep them clear and clean. water from the Appenines carried a large amount of lime, which was deposited in the pipes and sooner or later clogged them. The Romans tried to clogged them. The Romans tried to obviate this by slnking a series of shafts, but in the end it was found desirable to adopt the over ground system. Accordingly we find that all of the later squeducts are built in the air. Many of these aqueducts were under ground at the source, however. The Romans from an early date were familiar with the principle that "Water rises to the level of its source." Their knowledge of this principle is clearly brought out in their works. The methods of cugi-neering adopted by the ancients were very respectable and somewhat skillful. The tunnels often found at the source of the aqueducts are to all appearances constructed in a manner similar to that ia vogue at the present time.

The water channels were on top of the whole structure. The openings varied in size. The largest were about 2 feet in width and 31 feet in hight. The average channel was about a foot square. The channel was perfectly tight and the interior was carefully covered with pottery cement. This cement was made from powdered tile and water lime, and was very effective. It frequently happened that several channels ran along the same row of arches, one above another.

#### The Reservoirs.

At the terminus of each aqueduct was a reservoir. The Roman reservoir was not at all like ours. It was a large building with strong walls, and was usually highly ornamented in its architecture. The water was not only collected here, but it was allowed to stand and settle here before going into the distributing pipes. Whenever an aqueduct branched, which was often the case, a reservoir was erected at each branch. The reservoir always supplied the locality for a considerable distance around. The first class reservoir was around. The first class reservoir was divided into six departments, each supplying water for a different purpose. There was a acction set apart for the military, another that supplied the places of amusement. Then there were divisions devoted to baths, fountains, business and private residences. Some of the reservoirs were devoted exclusively to one department, as the baths of Agrippa, and other baths were supplied by a special aqueduct that led to the Palatine.

### The Distributing Pipes.

The distributing pipes that led from the reservoirs were all laid under ground. The pipes led to the main palaces and residences only. Very few of the tenements were supplied. These pipes were supplied. usually of tile and were often wholly Sometimes lead inclosed in cement.

pipes were used.

The public fountains, which were fed from these squeducts, were very numerous. It is recorded that Agrippa, when he was prefect, built 1300 new fountains. After his time they were even more numerous. These fountains even more numerous. These fountains were of three sorts. The most common was that of rushing streams, the water usually issuing from the mouths of figwhere the water spouted high in the air and the still water fountain, were very common. The modern fountains give a very good idea of what those of ancient Rome must have been like.

### The Drainage.

The drainage of the city of Rome is a malodorous but very important subject. In the life and progress of the city it plays a most important part. The site of the city is a very unhealthy one. The Tiber overflows its banks annually, and in early days the plains were covered with water each year. Since the land was so low the water remained a long time when it came. Mslaria was a universal complaint. The early was a universal complaint. writers make much of it in their works. The divinities that had to do with the fevers were very industriously wor-shiped. The natural defect in the city began to be remedied in the early kingdom, however. As early as 600 B.C. the region of the Forum was drained by a sewer. Part of the great drain still exists and is in use to day. The sewer called "Closes Maxima" was 14 feet in hight and 101 feet wide. floor was paved and an ordinary load of hay could be drawn through the aperture. Agrippa at the time he was in charge of the city passed through the great trunk sewer in a boat.

### The Sewers.

In the days of the empire the network of sewers throughout the city became even finer, until we have the testimony of Pliny to the effect that "Rome was a hanging city." In all the streets of Rome there were openings in the gutter to carry away the surface water. No system of traps for the prevention of the spread of noisome odors existed. The

drains in the houses were very similar to those in use at the present time. All refuse of whatever nature was carried

away by the sewers.

The banks of the river in the golden age of the city's prosperity were built up with high stone embankments. The overflow of the Tiber was thus prevented and the city more easily drained. When the city began to decline these walls fell away and the streets began to fill up. At present we find modern Rome far above the ancient city. instance, the old Roman Forum is 50 feet below the surface, while the Cam-pus Martius is about 12 feet under ground. This vast amount of earth was deposited largely by the river. The existence of the ruined buildings prevented the earth from being carried out to sea and facilitated greatly the filling in process. The old city became abandoned and the destructive agencies worked unchecked. The large amount of soil produced by vegetable decay aided in filling up the city.

#### The Baths.

The system of public baths was introduced into Rome in early times. At first the baths were small and simple in their nature. In the time of the empire the character of the baths changed. So much so, in fact, that the word signifying a bath became "termi," from the The baths of the city became much like modern club houses. served three purposes: 1, all forms of bathing were indulged in. Then there was an elaborate gymnasium attached to each bath house, where physical training, such as jumping, running, wrestling and boxing might be indulged in. Besides all this, the baths became places for social recreation. Loungers and men about town made their headquarters at the baths. Social intercourse, the reading of literary productions by the authors, consumed much of the time. In later days it became customary for the official announce-ments of the government to be read there.

The baths were built for public comfort, and were paid for out of the public treasury. They were free to all citizens, a nominal fee of 1 quadran, half a cent, only, being exacted. Foreigners were at some periods admitted free of Very generally the baths were charge. charge. Very generally the baths were designed for both sexes. The bathing suits were very similar to the every-day dress of the Romans. The bather was accompanied to the bath by his alave, who assisted him in all the departments.

The heating of the water and rooms was carried on through a system of fur-naces very much resembling those of our time.

### Caulking Echoes.

Drawings were recently seen where a boiler 12 feet long and 2 feet in diameter was to be used to supply hot water for a building, the water to be heated by a steam coil of 65 feet of 1-inch pipe. Such a boiler would hold about 360 gallons and the ceil allowance was 1 lineal foot of pipe to every 51 gallons of water.

"The proper namea for the four pipes on an ordinary kitchen circulating boiler are supply, service, flow and return," said an aggressively proand return," said an aggressively progressive plumber. On asking an old school plumber if this was correct, he wanted to know "which was which," and observed, "I suppose the 'supply' is the cold water service to the boiler and the 'service' is the hot water supply to the house and the 'flow' is cold water to the water back, sometimes called the sediment pipe, and the 'return' is the return from the water back, and often called the circulating pipe. He further stated that these names could be simplified and made uniform to great advantage.

Another plumber claimed that he prevented by a peculiar arrangement the bursting of a pipe over a sink on an upper floor caused by suddenly closing the faucet. He cut eff the pipe below the faucet and removed the faucet. Then a long piece of pipe was connected with the supply pipe and extended against the wall in a large circle that reached to the ceiling. Where the pipe returned to the sink he put a faucet and continued the pipe atraight up to the ceiling to make an air chamber.

### TRAPS AND VENTS.

CHAS. S. WEDSTER, president of the Zero Valve Company and Assistant Inspector of Plumbing of Buffalo, N. Y., states that though trade is dull some of their valves and seata are being used. There is very little work in course of construction and the inapectors find less to occupy them than formerly.

As a result of a meeting between the Legislative Committee of the Master Plumbers' Association of Allegheny, Pa., and the plumbling inspector, several conflicting clauses in the present plumbing ordinance will be corrected in a new ordinance.

THE PLUMBER'S REGISTRATION BILL was withdrawn on its accord reading in the British House of Commons last month. It is said that there is no chance of the bill becoming law until ita present provisions are materially modified.

GEORGE PARKS has opened a new plumbing shop in South Omaha, Neb.

JACOB H. ERION has opened a plumbing and gas fitting establishment at 106 North Duke street, York, Pa.

UNDER THE LAW providing for the registration of plumbers in Massschuaetts, at Boston, up to noon of August 30, 729 applicants registered, of whom 499 were journeymen and 230 master plumbers.

R. G. HARRINGTON has opened a plumbing shop on West street, Ware, Mass.

THOMAS E. VEAL, Chief Sanitary Inspector of Atlanta, Ga., is agitating the subject of forming an association of sanitary inspectors. In a letter to Sanitary Inspectors. In a letter to Santary Inspector Ledsinger, Columbus, Ga., he refers to the subject as follows: "I sm anxious to form a Sanitary Inspectors' Association, and I would like to obtain your assistance and co opera-tion in making this association a success. Any suggestions in regard to this very essential subject will be appreciated by me. My idea is to have this association based upon all such organizations meet annually, discuss sanita-tion and means of making sanitary matters more perfect than 'to-day.'

THE FOLLOWING PERSONS have been THE FOLLOWING PERSONS have been granted master plumbers' licenses by the Board of Health of Glouceater, Mass.: Israel C. Mayo, Alonzo F. Harvey, Leverett E. Smith, James H. Hull, Levi W. Thurston, James Norman, J. McKinnon and William E. Tucker Tucker.

"COPPER RANGE BOILERS" is the title of a little pamphlet issued by Randolph & Clowes, Waterbury, Conn. the well-known makers of brass and copper tubing, shells, drums, &c. The little volume opens with a brief treatise on the operation of a house boiler, showing how to prevent accident. This is followed by a description of the advantages of Brown's patent seamless copper house boilers. Illustrations in silver and copper bronze show the general appearance of the boiler, and sectional view is presented. The last half of the little pamphlet is given up to testimonial letters. The cover is in scarlet and in imitation of watered silk.

THE J. C. BEARD PLUMBING CCM-PANY have been incorporated at Charleston, S. C., with a capital of \$5000. The incorporators are J. C. Beard, H. T. Beard and H. A. Holverus of Charleston.

BELCHER, FORD & Co., plumbers, tlanta, Ga., have retired. They will Atlanta, Ga., have retired. They will be succeeded by M. E. & C. W. Ford.

THE drought in the West has materially benefited one branch of business. created a strong demand for pumping apparatus, which includes wind mills, pumps, tanks, &c. The severity of the drought, surpassing anything experienced in a section accustomed to long stretches of dry weather, will very probably cause those who can raise the money to mitigate the destructiveness of future visitations of the same character by boring numerous wells and providing pumping appliances. The outlay will be heavy, but the benefits will much more than comparate for the will much more than compensate for it.

WILLIAM CAMPBELL, well known to the supply trade through his former connection with Eton, Cole & Burnham, T. R. McMahon & Bros. and E. S. Keating, is about to open a supply house in Harlem, having leased the large and handsome stores 313 and 315 West 125th street, New York, where he will keep a full atock of supplies for plumbers, gas and steam fitters and engineers. The store will be open for engineers. business about September 15.

## Gas and Gas Fitting.—

BY J. W. HUGHES.

### Finding Leaks.

If the application of the test pump reveals the unpleasant fact that the job is not tight, it will be necessary for the fitter to hustle to find the leaks. Should the rapidity with which the gauge falls after being pumped up demonstrate that the leak is a large one, but little time or trouble is likely to be required in finding and remedying the defect. First go over all the caps and see that none of them is loose and that no nipple or drop has been left out. All the time the job is being gone over keep the ears open, and have the pump steadily worked, as the sound given off by the eacaping air will frequently lo-cate the trouble. For this reason it is well to test during the dinner, or before or after working hours, when comparative quiet will reign in the building. If all caps and nipples are found properly secured, then look for splits in the pipes, the usual place for such defects being where the tongs have gripped the pipe in screwing up. If the gauge falls very slowly, demonstrating the leak to

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be a small one, there will be much more trouble in finding it.

One method of locating the leak is to mix a quantity of strong soap suds, and with a clean brush generously apply the mixture over the surface of the different pipes, at the same time watching carefully for the bubble that will be blown, from even a very small leak, by the eacaping air. It will, of course, be understood that during all these operations the pump must be kept steadily working. Another method is to pour into a cup on the pump, provided for the purrose, a quantity of ether, in this case the nose being the organ used in the hunt, the fitter careful y going over the pipes, smelling for the ether that will escape from the leak. This method of finding a leak in an open building is somewhat uncertain and tedious, but is frequently used with auccess.

If the gas service is in and permission from the gas company be had, service and house main can be connected and the nose may be assisted by a lighted taper in the search. If the lighted taper is employed great care must be exercised to guard against setting the building on fire, as the very small flame likely to result from a little leak may not be perceptible to the eye, especially in the daylight. Or the flame may be at the back of a fitting in some inaccessible place, beyond the reach of eyesight. It is a good rule to test with a light in no place that cannot be easily reached to blow out any flame that may result, and further, when there is a strong odor of gas a light must never be put into confined places, such as between floors or behind partitions. This especially applies to searches for leaks in finished buildings, for by so doing the fitter may have an explosion added

to his troubles.

Sometimes it is possible to fill the pipes with water and locate the leak in that way. This is a risky business, however, as it is very difficult to empty out all the water, especially from the smaller pipes, and may cause trouble for months. The writer, nevertheless, has known fitters who did not hesitate a mement in adopting this plan, it being a certain and rapid way of finding leaks. When following this plan, however, the proper way to empty the pipes of water is to take off the caps on the nipples and drops that are highest. Then remove the caps on the lowest drops and nipples and on the main, blowing violently several times into each nipple on the upper or top flat. Then take the caps off the next lower flat and blow into all the pipes on that floor and so on down, keeping at it until there is so uncertainty as to the pipes heing entirely emptied of water. They can then be left for a few days and the blowing out process repeated. This method of finding leaks is, of course, out of the question in cold weather.

In fitting up large buildings it is a safe plan to test the work in sections—say a flat or two at a time—leaving suitable connections for joining all the parts tested before making the final test of the whole job. Having found the leak, there comes up for consideration the question of making effectual repairs. A split pipe or fitting must be removed and replaced with sound material, but a small hole in a fitting may be closed with gas fitters' cement, the fitting being first well heated by means of the blow pipe and lamp and the cement applied to the attachment while hot. An escape at the screw thread may also be firmly closed with cement or with red lead well rubbed in.

### Hardware Curios.

The accompanying illustrations represent some of the old time Hardware in the possession of H. C. Wiseman of the Springfield Hard-



Fig. 1.-Hand Wrought German Padlock.

Company. Springfield, Ohio, ware who for a number of years has

nearly 100 years of service, according to its former possessor. The blade is of wonderful temper, and the Knife is still in very good condition.

shown in Fig. 6, which is as curious as the Lock itself. The Key in Fig. 7 measures 71/2 inches in length, and the ring handle 4 inches in diameter. The

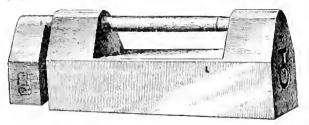


Fig. 4.—Chinese Brass Padlock,

The old wrought iron dip Lamp will be recognized by many who were in business half a century ago. This is one of half a dozen Lampstaken from an old stock of Hardware two years ago in the original package, and had

been handed down in the one store

for nearly 50 years.

Key controlled the front door Lock to an ancient business block for a long series of years and until the block was replaced by the handsome bank building which now covers the ground.

The little screw barrel Gun, measuring 5 inches over all, as illustrated in Fig. 8, dates back to 1845, and is still good for muzzle loading service. It was taken from a tramp lodged in a station house nearly 15 years ago and is one of a number still in existence. Included in this collection of old time Hardware is a 6 x 10 inch rim Door Lock; Lull



gathered together any quaint pieces of old Hardware that have come in his way.

iron hand-wrought German The Padlock of 70 years ago, shown full size in Fig. 1, has a spring door covering the key hole, making it a secret Lock. It is in as good condition as



Fig. 5.—Shackle of Chinese Padlock.

Figs. 4, 5 and 6 represent a genuine | & Porter Blind Hinges, weighing 8 Chinese Padlock, a veritable curiosity | pounds to the single pair; Wood



in shape and mechanism, but embody- | Screws made without gimlet points; ing good mechanical principles in con- | a United States Mail Lock of 1829, with

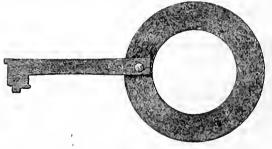


Fig. 7.—An Ancient Key.

struction. The Lock was bought from I five tumbler inside brass work, and a Chinaman some years ago, being | some old Pistols, among which is one



taken from his chest directly after with the words "Deringer, Philadellanding. It has a folding key, as phia" stamped on the lock and barrel.

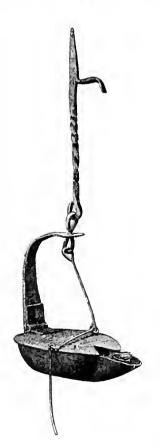


Fig. 3.-Grandmother's Best Lamp.

when made, and was brought to this country on a German chest nearly 60 years ago.

The old time Pocket Knife shown in Fig. 2 measures 61/2 inches in length with the blade open, and has seen

# TIN PLATES.

Delay in Tin Plate Delivery, 1

Tin plate importing and jobbing houses at the present time are being inundated with telegrams and letters from impatient customers asking the reason why their orders are not promptly shipped. It may, therefore, be opportune to point out to consumers that the nearer October 1 is approached the fewer boxes of tin and terne plates will be found in stock, duty paid, as houses holding plates in bond cannot be expected, under existing conditions, to withdraw them, except in cases where they are actually ordered. It then takes two or three days, and sometimes longer, to put entries through the Custom House, owing to the pressure of business in that department. Consequently, purchasers needing plates in a hurry and expecting to get them at once are liable to disappointment. Consumers would do well to note these facts and order beforehand, accord-

### A Welsh Tin Plate Worker's Views.

President L. Richards of the Welsh Tin Plate Workers' Union is quoted in an English exchange as saying that the British manufacturers should accept the 36 box rule so as to prevent the market being glutted. This, he estimates, would yield 14,400,000 boxes a year, or 2,500,000 more than the exports in 1891, the year before the McKinley tariff came into operation. Some mastera have already adopted the rule, but others decline to do so, because they want he saws to carry on a cut threat want, he says, to carry on a cut-throat competition. Though the reduction of the tariff will, in his opinion, lead to an advance of 1 shilling per box, they will lose in other ways the advantage thus gained. The revolution in the oil trade must injuriously affect them. Oil had hitherto been carried in tins, but now tank steamers are beginning to carry it in bulk. This, he says, will make a difference of 1,000,000 boxes a year in the Russian trade alone, and another 2,000,000 boxes in the American trade. This loss, however, might be recovered if they could only get tea from China and Ceylon carried in chests made of tin and lead instead of in wooden cheats, as at present.

### SCRAP.

An erroneous notion has got abroad that in a recent article referring to the difficulties in the way of the smaller dipping concerns under the new tin plate tariff we intimated that the future of the American tin plate industry was exceedingly dark. Lest this impression should gain further credence, we wish to state very plainly that our remarks were confined to the smaller works who are severely handicapped by the new duties on black sheets and tin plates. As a matter of fact, many of these smaller works have closed, and their proprietors express little hope of reopening unless advantageous arrangements and arith domestic bleek opening unless advantageous arrange-ments can be made with domestic black sheet mills. The larger firms, on the

other hand, who have established trades other hand, who have established trades in their specialties, are, as we have previously stated, in a much better position. The lower duty on tin plate is in a measure prejudicial to the American industry, but there is not the slightest prospect that the tin plate trade which is now established here will ever be recovered by Wales.

A MERTING of the Tinned Plate Manufacturera' Association of the United States was held in Plttsburgh, Wedneaday of this week, for the purpose of discussing what reduction in wages will be necessary on account of the lowering of the tariff on tin plates. The Wednesday meeting was preliminary to a conference held at Pittaburgh on Thursday between the Executive Committee of the Tinned Plate Manufacturers' Association and a committee of the Amalgamated Association. It was not ex pected that any immediate agreement would be reached, as the question of what changes have been made in the aelling prices of tin plates under the lower duty had to be exhaustively gone into, and would require considerable We understand that the tin plate manufacturers and also those concerns making sheets for tinning purposes were going to insist on a reduction in wages, and this would likely be opposed by the workmen. It is the opinion of those who are familiar with the situation that a slight reduction at least in the present wages in tin plate mills will be effected.

WE ARE ADVISED that the tin plate works of N. & G. Taylor Company, Philadelphia, are running full, with a good volume of ordera, particularly for their apecial brands of roofing plates. Another tinning pot has been recently added, making the present equipment

WE HAVE BEEN FAVORED by the Record Mig. Company, Conneaut, Ashtabula County, Ohio, with some excel-lent specimens of IC, 20 x 20 bright coke tin plates made at their works. The plates are made of American steel, and the coating is smoothly and evenly distributed, giving the plate a hand-some appearance which is enhanced by a brilliant polish imparted to them by the Record patent cleaning and polishing machine now in use at the firm'a works. There is no trace of the rubbing or scratching which so often marred the bright plates treated under the old manual system.

GERMANY exported last year 2693 tons more of tin plate than she did in

In its remarks on the new tariff the London Ironmonger says that while British manufacturers of tip plates will be assisted by the new rates their hold on the American market will never be what it was formerly.

One of the most attractive exhibits in the County Fair held last week in New Castle, Pa., was that made by the New Castle Steel & Tin Plate Company, consisting of steel billets, tin bars,

plates made by the firm. Fruit cans, cups, coffee pots and other objects manufactured from "New Castle" plates added to the display and demonstrated the excellent character of the home made product. The display, which attracted considerable attention, was arranged by Bert Greer, a boy 17 years of age.

THE IRONDALE STERL & IRON COM-PANY of Middletown, Ind., started their new rolling mill on the 31st ult. They will manufacture tin plate, beginning with the steel billet. The starting of the plant was made the occasion of much rejoicing among the manufacturers and other citizens of Indiana, who gathered at the works.

Exolish Cable ADVICES indlcate that some of the idle Welsh tin plate works are starting up again on the atrength of the new American tariff. Among those which have gone into operation this week are the plants of the Burry Iron & Tin Plate Company of Llanelly, with six mills, and the Gorseinon Works of Wm. Lewis & Sons, Gorseinon, near Swansea, also having a six-mill capacity.

THE ELLWOOD TIN PLATE COMPANY, Ellwood City, Pa., manufacturers of tin and terne plates, have recently let a contract for a new tinning house which will measure 50 x 100 feet in size, and contain ten tinning stacks In addition to this building the firm will put up an assorting room and pickling room in two separate buildings of about 30 x 40 feet in size. The firm have placed orders for two Morewood tinning sets with the Lloyd Booth Company of Youngstown, Ohio, and two Thomas & White sets with the Union Foundry & Machine Company of Pittsburgh, with which four machines it is their intention to make a start coating their preduct of to make a start coating their product of black sheets, while they will gradually equip their tlnning house to its full capacity as soon as conditions warrant this step being taken.

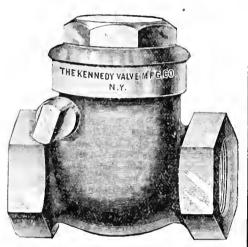
A GOOD INDICATION of gradual improvement in the metal trade is the satisfactory character of collections. A member of one of the largest tin plate and metal jobbing houses in this city said, a day or two ago, that payments had never been more prompt than at the present moment. It seems that country dealers and consumers have been putting their money into the banks during the past year instead of into atock. Consequently, they are now in the most favorable position— Consequently, they are having little or no stock—to create an active fall demand for all lines of metal products. The authority quoted is of opinion that things are decidedly shaping toward an excellent business for the last quarter of the year.

Forest fires, caused by the heat and drought, have devastated large tracts in Northern Michigan and Wisconsin. The losses to the lumbermen aggregate many millions of dollars. Several towns and villages have been completely wiped out, and much suffering is felt by the

# STEAM AND HOT WATER.

### Kennedy Straightway Swinging Check Valves.

Fig. 1 of the accompanying illustrations shows a general view and Fig. 2 a sectional view of the straightway swinging check valves brought out by the Kennedy Valve Mfg. Company, 52 Cliff street, New York. A special feature of these valves, to which the manufacturers allude, is that the disks



Kennedy Straightway Swinging Check Valve.—Fig. 1.—General View of Valve.

in both the brass and iron valves rotate and are so constructed that they cannot become inoperative by sticking fast in the body of the valve when in use. The boxes in which the disks hinge are made of the best bronze. The valves are made with either screwed, flanged. or bell ends, and with brass, rubber or leather disks, as required, and those above 8 inches are furnished with a bypass

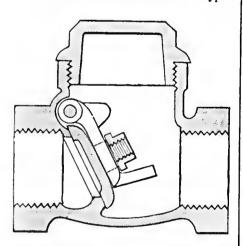


Fig. 2.-Sectional View of Valve.

when desired. The general features of the valve are shown in the sectional illustration. The brass valves are made in ten sizes, from 1 to 3 inches, while the iron valves are made in 13 sizes, from 2 to 16 inches.

week on his way to his home in Balti-more where he will spend a few days. Mr. Wilson reports a good trade in his line in the New England States and hopes to find business equally active in the Middle States, which he will visit after leaving Baltimore.

### Professor Jacob on Ventilation.

In a recent address before the Yorkshire Engineering Society, England, Professor Jocob declared that six parts of carbonic acid gas in 10,000 in an atmosphere are not obnexious, but 12 parts give rise to objectionable odor, and as the greater part of the air of a room in supposed circulation is really stagnant-this stagnation very commonly extending beyond the limits of the breathing line—the admission of cold air at the base of the walls, with exit from the ceiling line, does not necessarily ventilate the room. In record to the propulsion and systim are gard to the propulsion and suction systems, he remarks that there are objections to the long air passages of the former, that the useful area of such passages may be considerably reduced by sharp bends, and in pipes with elbows at right angles the reduction of available area is as much as 25 per cent. For efficient means of ventilating and heating, Professor Jacob urges that heating radiators should be so arranged that the incoming cold air can be drawn over the radiators if necessary, or deflected partly over the coils or not at all; it is better also to arrange the heating coils in sections, so that part can be cut off from the heating supply. Thus, if the temperature of the air on passing over the coils be greater than that of the air in the room it will rise, and in order to promote its circulation it is to be drawn from the base of the wall opposite which it enters; if colder, then other-

### Summer Testing for Winter Heating.

From L. A. N. & Co., New York.— In The Metal Worker of August 18 a correspondent requested information relative to the summer testing of heating plants with a view to determine their capacities for winter heating. It appears to us that the determination of the question whether a heating plant will warm a building in which it has been erected to a specified temperature in cold weather, involves something more than a test of the apparatus put in for that purpose; so that if a test of the apparatus in summer could be made which would entirely determine the tightness of its joints, the positiveness and freedom of its circulation, and its capacity to generate and distribute heat to all parts of the structure, the question whether, under the conditions of temperature named in the guarantee, it would heat the building to the re-quired temperature would, in the ab-sence of accurate knowledge of the J. J. Wilson, heating engineer, with the Fuller & Warren Company, Troy, N. Y., passed through New York this the winter season had established the

conditions under which the apparatus is stipulated to produce a given effect. Since heat transmission depends upon temperature differences, such differences csnnot be artificially established be-tween the interior and exterior of a building in summer as will be naturally set up in cold weather. Nevertheless, a contractor may satisfy himself in summer that, if the building has been well constructed, the heating apparatus placed in it is sufficient to fulfill the piaced in it is sunicient to idinity the terms of his guarantee. To entertain grave doubt on this point with reference to all heating work done in summer would entail a losd of anxiety too great for endurance in any business. The chief difficulty lies in satisfying the owner that the plant will fill the bill. The result is that final payments on summer jobs are delayed, and it is often six months, or even more, before the desired weather which will prove beyond question the sufficiency or deficiency of the apparatus enables the contractor to press for the enablea the contractor to press for the collection of the final payment. The whole difficulty relating to the determination of guaranteed efficiency of heating apparatus, so far as it affects the question of final settlements, would have been engaged. disappear if, as has already been aug-geated in The Metal Worker, owners were compelled to take their fair share of the risk. The contractor should only be required to guarantee his apparatus to have the proper capacity for a well constructed building of the kind and size of that in which the apparatus is to be placed; then he may, if skillful in this kind of work, plan and construct a heating plant in such a manner as to he reasonably sure of success in filling his guarantee. If the failure of a heating plant, otherwise ample, results from bad building, surely the contractor ought not to suffer for the sins of either builder or owner.

### HEATING NOTES.

COL. WILLIAM C. MOWRY of Norwich. of steam heating fame, and known to every plumber in the State, is in the field for political preferment, says the New Haven Weekly Record. Colonel Mowry is spoken of as a promising candidate of the State State of the State of didate for State Secretary.

THE MARYLAND STATE LAW probibiting the use of stoves in passenger cars having become operative, the Baltimore & Ohio Railroad Company have awarded a contract for fitting up 500 of their passenger cars with steam heat.

THE WALWORTH CONSTRUCTION AND SUPPLY COMPANY, Boston, Mass., on September 1 removed to larger quarters, at 100 Pearl street, corner of High streat.

Secretary Carlisle has reversed his first ruling in regard to the admittance of bonded goods placed on the free list of the new tariff law, by which ruling such goods would have either to pay the McKinley duty or be exported and reimported. He now directs that these goods be admitted duty free, although placed in bond previous to the enactment of the new law.

### Cold Air Regulator.

A device of interest to the furnace and heating trades is a cold air regulator manufactured by C. W. Richards, 90 Euclid avenue, Cleveland, Ohio. The general features of the regulator are shown in the accompanying cut, which illustrates the device adapted to govern the sir supply. The regulator is located in the cold sir box, and consists of a frame the same size as the window that admits the cold air. This frame, as shown in the engraving, is divided into a series of openings by ver-tical bars. In these openings are a series of outer and inner balanced valves made of iron and having brass bearings and awinging on brass rods. They are nicely balanced, and the outer ones close more or less according to the force of the wind, thus reducing the supply to the cold air box. The instant, however, that there is a lull in the wind they open automatically and supply more sir to the furnace or heater. The inner ones, by a reverse placed in a duplicate machine, and the compositor puts the tubes to his ears and sets in type what he hears. If the machine talks too fast he can stop it.

#### FLASHINGS.

THE KANSAS CITY METAL ROOFING & CORRUGATING COMPANY, Kansas City, Mo., report a very satisfactory trade. Their July business was more than double the corresponding month of last year, and August showed equally good results. Among the orders recently secured by them for corrugated iron roofing and siding they mention the following: Rex Milling Company, Arms & Kldder Milling Company, and the Kansas City Car & Foundry Company, and, in addition to these, shipments have also been made to points in Missouri, Kansas, Oklahoma and Indian Territory.

THE GARRY IRON ROOFING COMPANY, Cleveland, Ohio, have secured large contracts from the United Salt Com-

columns, the Youngstown Iron & Steel Roofing Company, Youngstown, Ohio, have been organized as a stock company under the laws of the State of Ohio, with the following efficials: L. E Cochran, president; G. M. McKelvey, vice president; C. S. Pew, secretary; Mason Evans, treasurer, and John O. Pew, general manager. concern have now under construction suitable buildings for the manufacture of a full line of metal rooting of all kinds and styles, metal siding and ceiling, and when completed it will be one of the best equipped works of the kind in the country. The new plant is so located that there will be direct connection with four of the main trunk lines running East and West, these being Lake Shore & Michigan Southern, New York, Pennsylvania & Ohio, Pennsylvania and Baltimore & Ohio. It is proposed to manufacture the John O. Pew patent standing seam steel and iron roofing, the fastener used being one for which a patent was recently granted to John O. Pew and for which many points of excellence are claimed.

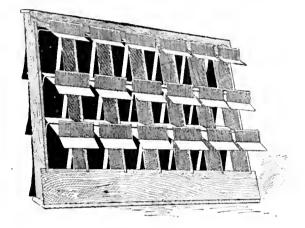
As ALREADY ANNOUNCED in these

A LARGE SLATE DEPOSIT, says the Tradesman, located 40 miles from Knoxville, Tenn., has recently been discovered and examined with gratifying results. The property is owned by Maurice and Ida Hoskins and the deposit is of the best roofing slate, both sky blue and sea green, and does not change color or quality after exposure.

Transatlantic record breaking has set in with great severity. Two weeks ago the Cunard steamship "Campania" broke the westward record by three hours, and on her eastward voyage last week the same vessel accomplished the passage from Sandy Hook to Qucenstown in 1 hour 13 minutes less than the previous best time—her own—making the eastward record 5 days, 12 hours, 7 minutes. On Friday last her sleter vessel, the "Lucania," arrived in New York in 5 days, 8 hours, 35 minutes from Qucenstown, thus snatching the westward record from the "Campania" and making another step toward the predicted five days' voyage.

Andrew Carnegie has an article in the September Contemporary Review on labor in America, in which he says that the workingman can live for less in the United States if he chooses than in Grest Britain, provided that he will live as frugally. A pound expended judiciously here would, he thinks, afford the workingman's family more comfort than would the same amount spent in England. Consequently Mr. Carnegic concludes that the argument that wages must be higher in America is fallacious.

Orders have been received at the Brooklyn Navy Yard that the new engines for the "Chleago" are to be built there. The yard presents just now a scene of unusual activity. The docks are full of ships, and all the departments are busy. Among the commissioned vessels now undergoing repairs or overhauling are the "New York," the "San Francisco," the "Cincinnati," the "Vesuvius," the "Bancroft" and the "Dolphin." In addition, the "Maine," the "Laneaster," the "Machias," the "Castine," the "Puritao" and the "Terror" are preparing for commission.



Cold Air Regulator.

action, close the instant there is a tendency to an outflow of hot air through the cold air box. Those who are familiar with the curious behavior of furnaces during windy weather will understand the advantage of a regulator of this sort.

The Philadelphia Ledger says that in Russis the bishops are beginning to have their miters made of aluminum. This takes a load off their heads, as the ordinary miter weighs five or six pounds and a metal one only one pound or so.

Pacific Coast journals chronicle a sensible improvement in local trade during the present month. The San Francisco Bulletin mentions the fact that eight wheat cargoes had been cleared from that port during the first half of the present month, against only one in July, one in June and four in Msy, while 11 ships were in port under engagement to take grain and canned goods to Europe. Altogether, the prospects are regarded as favorable for a satisfactory revival of the export trade of the port.

An entirely new departure in printing has been taken by the Pall Mall Magazine of London. The printers of that periodical are making use of the phonograph in place of the usual "copy." The cylinder is removed after an article has been spoken into the machine and sent to the printing office, where it is

pany of Cleveland to erect iron structures at their works which were recently burned down. The buildings are to be constructed entirely of iron.

THE DEMAND for the metallic Spanish tiles made by Merchant & Co., Incorporated, of Philsdelphia, has grown to such proportions that the firm sre now preparing plans for the erection of a new building in connection with their tin plste and smelting works, to be devoted to the manufacture of these articles. The tiles have been highly recommended by leading srchitects and builders. Three hundred and sixty squares were recently shipped to Denver, Col., for the roof of the new Union Depot in that city.

THE USE of galvanized sheet iron is increasing in Java, judging by the returns of exports of that material from Great Britain. In 1890 they were of the value of \$93,600, but in 1893 they had increased to \$155,700.

THE KANSAS CITY METAL ROOFING AND CORRUGATING COMPANY, Kansas City, Mo., are sending out to the trade a return postal card solielting inquiries for the lines which they carry. The return portion of the card enables the prospective customer to state quantity and kind of goods wanted and for what purpose the material is to be used. The postal eard slso contains a list of materials which this firm carry in stock, and the points emphasized are "best goods, lowest prices and quickest delivery."

### The Keating Pipe Yard.

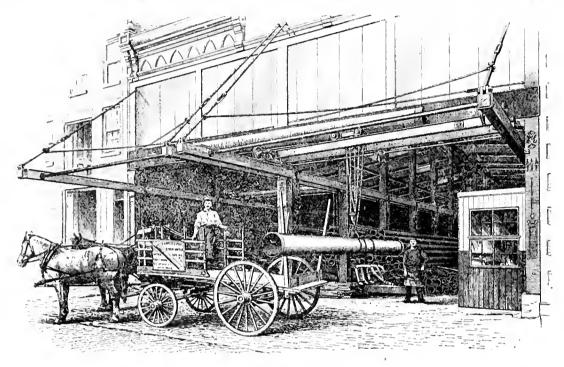
The pipe yard of Edward F. Keating, at 435-437 Water street, New York, is admirably arranged for the convenient storing and the quick and easy delivery of pipe of all sizes. One man can, unaided, raise without trouble and load upon the truck a length of the heaviest pipe, weighing 1200 pounds. The building is 120 feet deep by 40 feet front. It is divided into two compartments by a center row of heavy wooden

capacity. Each can be handled by one man, even when loaded to its full capacity.

## Elghi-Foot Automatic Self Opening Rolls.

We show in the accompanying illustration automatic self opening rolls, 8 feet in length, which are put on the market by Bertsch & Co., Cambridge City, Ind. The operation of opening

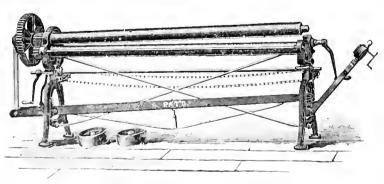
from end to end with ease. The lower roll is self adjusting and need not be altered every tims after bending the plate, unless the plate to be formed is either a thicker or thinner one, in which case the lower roll is adjusted as desired at both ends. The rolls are provided with Messrs. Bertsch & Co.'s improved quick adjustment on the back roll. This attachment is a link belt chain and sprocket wheel on adjusting serews, one or both ends of the back roll being thus adjusted quickly and accurately at one



The Keating Pipe Yard.

columns. One side is used for the storage of small or bundle pipe and the other for piece or large pipe. Running down each room is a hand traveling crane carried on light rails placed on wooden stringers supported by the center row of columns and the side walls. These tracks extend beyond the front of the building, to which their outer ends are secured by turnbuckle rods, as shown in the engraving. The ends of the tracks are in line with the curbstone, so that it is necessary for the truck to obstruct only a small part

the rolls, as shown, can be done by one man in a few seconds, a single operation almost instantaneously disengaging the bearing buckle, which, when removed and turned back from the top roll journal, will at the same time elevate and support the top roll. It also at the same time lowers the opposite end of the lower feed roll to release a wide plate at the opposite side. The attached bar beneath, the two front rolls, the bearing buckle alluded to and the attached bar are operated conjointly when opening or closing the bearing buckle.



Eight-Foot Automatic Self Opening Rotts.

of the sidewalk in order to be reached by the crane. The ends of the tracks are supported against side movement by the diagonal tie rods shown. The front of the building is closed by vertically sliding doors which pass through openings in the stringers. The gap thus made in each rail is closed by a small acction of rail when the crane is in operation. Each crane is of 2 tons The opposite end of the lower feed roll has its journal box and adjusting support connected to the opening bar, and therefore the weight of the lower roll at the opposite end will ald in elevating the top roll and help it support it when the formed metal is removed. The construction of the machine furthermore is such that the two feed rolls are in a manner balanced and free to open

time. For cone or tapering work one end of the roll can be adjusted at any angle by inserting a tapering wedge under the journal box.

### Smoke Consumption.

According to Engineering of London no appreciable economy is likely to be effected by smoke consuming devieta. The assumption that smoke contains a large proportion of combustible monocoride has been disproved by analyses of furnace gasts, and the calorific value of the hydro-carbons in ordinary coal is only a small part of the total. Furthermore, heavy smoke contains only 51 grains of soot per 100 cubic feet, and spot contains only 60 per cent. of combustible materials. The demonstration of the commercial inutility of smoke, however, will not affect the agitation for the abatement of the smoke nuisance in large cities upon esthetic and hygienic grounds.

The Allegheny Board of School Controllers have authorized the establishment of manual training schools in Pittsburgh. The Controllers will furnish the teachers and the Ward Boards will supply the necessary buildings.

An ordinance has been introduced in the Common Council of Reading, Pa., which provides that each and every person who shall throw "a banana peel or peels upon any of the sidewalks or street crossings shall, for each and every offense, be liable to a fine or penalty of not less than \$3 and not more than \$10."

### THE RETAIL STORE

### Dangler Combination Radiator Heater.

In the accompanying illustration we present a general view of what is known as the No. 308 Dangler combination radiator heater, which is being intro-

desired; large air circulating eapaeity and nickel plated and polished side and front ralls. Top, base and middle rings are features to which the manufacturers allude. The oil tank is of heavy spun brass, and is easily removed by means of rings which are provided with which

Dangler Combination Radiator Heater.

duced to the trade by the Dangler Stove | & Mfg. Company of Cleveland, Ohio. The heater is of attractive finish, some of the parts being nickeled and forming with the black surfaces of the radiating tubes a pleasing contrast of light and shade. A 6 inch burner rests on a highly polished copper reflector. The radiator is composed of ten tubes, placed as shown in the engraving. Asbestos is used for lining purposes, and it is claimed that the air in passing through the doors on each side of the device gives satisfactory combustion and results in the radiation of intense heat. The radiator is made either plain or nickel finish as may be desired.

### Perfection Oll Heater.

An oil heater possessing a number of interesting features of construction and made under the name Perfection is being offered the trade by I. B. Kinne & Son, 208 Nicollet avenue, Minneapolis, Minn. The stove is mounted on casters, has removable top, making room for a vessel in which to heat water if

to lift it. It has a flat bottom and can be set in any convenient place for filling,



Perfection Oil Heater. - Fig. 1.-Top Turned Back for Lighting or Removing Oil Tank.

adjustment is such that the wick is raised evenly all around. Fig. 1 of the illustrations represents the Perfection oil heater with the top turned back for lighting or removing the oll tank. also shows the bottom of the circulating tubes, which draw the cold air from the those, which draw the cold an from the floor around the oil tank up into the heating drum. The large amount of cold air passing around the oil tank, it is noted, keeps the latter cool and reduces danger to a minimum. Fig. 2 of the illustrations shows the heater with a portion of the outside shell removed exposing the air tubes and central heating chamber. The makers state that the drum has 1624 square inches of radiatiou. There are 19 steel tubes 11 inches



Fig. 2.—Heater with Shell Removed, Showing Air Tubes and Central Heating Chamber.

In diameter drawing air from the floor and diacharging it in a highly heated condition into the room. The manufacturers refer to the economical consumption of oil. It is stated that the device will heat a room 15 feet square in the coldest weather.

### Fishing Tackle.

A Western retailer thus writes in regard to the desirability of Fishing Tackle being handled by Hardware merchants, and at the same time refers to some of the features of this class of trade:

I am surprised that so few retail Hardware dealers make a purh on Fishing Tackle. There is a disposition to leave this branch to the gunsmith, but

The time was, and not so very long ago; when an ordinary stock of Tackle for a retail store consisted of a few cheap lines, a few boxes of common hooks, some sinkers and floats.

that ran up to \$5 was a very good one. But the growth of the idea of sum-mer vacations and the greater interest taken in all outdoor recreations have led to the increase of fishing to a won-derful degree and has made Tackle an important item.

Twenty five years ago the man with a jointed rod was a rarity, now the very smallest boy has to have one. The cleaning, trimming wick, &c. The capacity of the tank is about 5 quarts. The manner and kinds of artificial baits. Nothing in hooks used to be known but a Limerick, but new the young fellow talks about Carlisle, Sproat and Cincinnati Bass, hooks with the same air that he discussed the best brand of

chewing gum.
Prices in what used to be luxuries (Rods and Reels) have dropped down faster than almost any item in our line. The factories sell a three-piece ash rod

### The Gem Stove Truck.

A new form of stove truck is being introduced to the trade under the name of Gem, by Charles F. Fox of Dayton, Ohio. The manufacturer refers to the device as overcoming all the objections common to wood platforms, this being made entirely of iron and in compact cuts. Fig. 1 shows the pipe nested tocuts. Fig. 1 snows the paper and gether for handling and Fig. 2 shows a gether for handling and Fig. 2 shows a gether for use. The special single joint ready for use. The special merits claimed for this pipe are convenience in handling, absolutely tight lock joint and simplicity of adjusting seam.

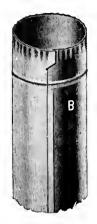


Fig. 2.—Single Joint of Pipe.

The pipe is put up in crates of 50 joints each, and being nested in crates it is pointed out that a low freight rate is The pipe is made of cold secured. rolled smooth steel and also of common surface iron.

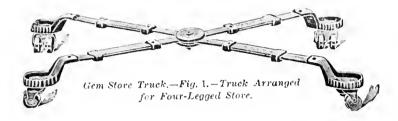
### The Parlor Dome Oil Heater.

One of the unique oil heaters of this year is shown in accompanying picture of the Parlor Dome, brought out by the Central Ollgas Stove Company. In appearance it is ornamental, and every convenience is provided to render its



The Parlor Dome Oil Heater.

use agreeable. Resting on an attractive ateel tray with casters it is readily moved where desired. The body has a graceful swell from the four supports to point where foot resta are secured. From this point it recedes as it raises to the dome support, which extends directly to a large diameter to receive the dome. The dome, with perforations in its surface, rises to a handsome urn at the top. The entire heater is made of cast iron and a very pretty effect is gained by the decoration and when lit a soft, warm light is spread through the perforations in the dome. Addi-



for 75 cents per dozen. The result of this has been to about kill our trade in Japanese and Calcutta bamboo poles. The result of We buy a plain Reel at 60 cents per dozen. None of us imagined ten years ago that we would see prices touch these figures—a jointed Rod and Reel to cost us 11 cents.

Lines have dropped in proportion, so that we can sell a braided Line for a

nickel.

In the matter of artificial baits prices are also phenomenally low. We buy a good plated Spoon Hook with fly at 5 cents. Rubber Minnows are down to 22 cents.

form. It has no clamps, yokes or thumb screws to get out of order. Its construction is such as to permit of ready adjustment to all sizes of stoves. One of the special features of construction claimed in this device is that it accommodates itself to all forms of fourlegged stoves as well as to those which have but three. It is stated that one man can mount any ordinary size stove with ease. Fig. 1 of the illustrations shows the truck arranged for a four-legged stove, while Fig. 2 shows the manner in which it can be employed for a three-legged stove. The truck is

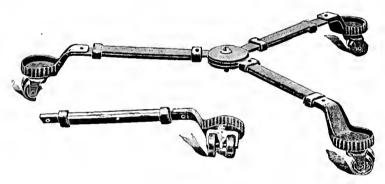


Fig. 2.—Truck Arranged for Three-Legged Stove.

Now, with these low costs, and the spirit among men and boys to have good tackle, there is nothing in a Hardware store that will better pay for the

ware store that will better pay for the work put into it than this line.

The person who is going fishing wants to catch some fish. He knows that fish are creatures of whin and fancy. What they eagerly bit at yesterday they will not touch to-morrow. Consequently it is comparatively easy to coax a man who is going fishing into trying a wider variety of baits into trying a wider variety of baits than he intended, and it will be still easier to do this the next time he calls, for he will see others catching more fish than he succeeds in capturing, and ten chances to one he gives all the credit to the particular hook or bait they used.

It is a pleasant business. It is at its best in the hot summer months when other branches are dull. The fisher-men of the town include the very nicest people there, and they are pleasant customers to trade with. Above ant customers to trade with. Above and beyond this is the fact that it pays,

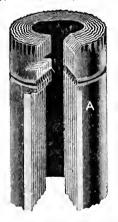
and beyond this is the fact that it pays, and pays handsomely.

If stock is carried over it is just as salable a year from now, and the judicious buyer will remember that it is easy to replenish, and need not invest very heavily at the start. The trade belongs to the Hardware line. If you are not "in it" you are making a mistake.

compact, requiring very little apace for storage, and is shipped in cases of four

### Columbia Nested Stove Pipe.

The Columbia Corrngating Mfg. Company, Niles, Ohio, are offering to

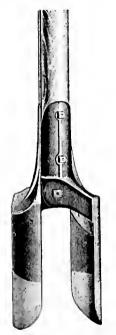


Columbia Nested Store Pipe.-Fig. 1 .-Pipe in Nested Form.

the trade the Columbia nested stove pipe of their manufacture, views of which are shown in the accompanying tional ornamentation is accured by the use of nickel, japan and gilt. It is made in three sizes, with a tlame of 10, 12 and 15 inches respectively. The dome is secured to the body by a hinge and when turned back the burner and tank can be readily removed for attention. The burner is of the central draft type, so made as to effect, it is claimed, an odorless combustion and a great heating capacity. A heavy seamless drawn steel tank is used that is retinned, and the device for adjusting the wick renders the care of the heater free from annoyance. A new circular of the heater is being sent out that leaves none of its features unnoticed.

### The Canton Post Hole Digger.

Gibbs Mfg. Company, Canton, Ohio, are putting on the market a post hole digger as here shown. The handles



The Canton Post Hole Digger.

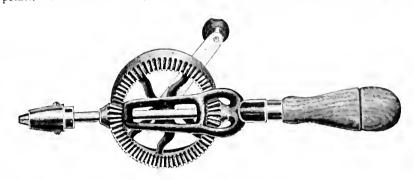
open past each other, bringing the strain on the thick way or edge of the handle, instead of apart and on the broad or thin way, thus giving, it is explained, increased strength to the handles. The shanks above the blades are round in form to fit the handles and permits them to be firmly fastened with 15-inch bolts, and to be kept tight in case of shrink age. A shoulder is provided at the bottom of the handles to receive the full thrust instead of allowing it to come on The hinge bolt is of steel the bolts. and is provided with a jam nut to prevent it coming loose, also to take up all wear perfectly. The length of the steel blade is 9 inches; the length of the entire digger is 5 feet 3 inches and the weight 9 pounds each. The manufacturers remark that all the materials used in the construction of the tool are of good size and of strength to withstand the required work, and that although the digger was designed to meet the prevailing tone of low prices the finish will be kept up to their usual good standard.

### Hand Drill No. 5.

Millers Falls Cempany, 93 Reade street, New York, are putting on the market the hand drill here shown. The drill is offered as a substitute for drills Nos. 1 B, 3 and 3 B, and has, it is claimed, all of the advantages of the

other numbers mentioned, and In addition has a wide rimmed gear to be grasped between the thumb and fingers when the drill is used for deheate work. It is stated that in this manner it can be run without liability of breaking points. The drill is double geared, 111

C the metal door jamb, D the inner tire proof rlm, and E the fireproofing around the inner case. The materials used are high grade, cold rolled and pickled steel, and the best non heat-conducting substances. The boxes are of such shape and size that they can be



Hand Drill No. 5.

inches in length, weighing 20 ounces, and is accompanied by six points of the same style as are put up with their automatic borers. The drill has the advantage over No. 3 B of being listed at a less price. The manufacturers state that they shall discontinue the making of the three numbers referred to, and that when their present stock on hand is exhausted the No. 5 drill will be substituted without notice.

### Steel Fire Proof Security Boxes.

The Sidway Mfg. Company, 32 to 40 South Jeff-reon street, Chicage, are manufacturing a steel fire proof security box which is specially adapted for use in private residences. Safes or other receptacles for protecting valuables, documents, jewelry, &c., from fire are seldom found in residences on account of their cost, size and weight. It is claimed that these objections have been overcome in the construction of the Sidway box, after over a year's experimenting. The illustration herewith given shows its form. The outside length is 17½ inches, and the width and hight are each 11 inches. Its inside length is 10½ inchea, width 5½ inches and hight 6 inches. The weight is 55 pounds. In the construction of these

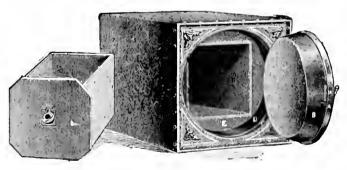
hidden on a shelf, in a trunk, or in a closet or some other convenient place. The company issue a descriptive pamphlet which gives a report of a severe test of the fire proof quality of one of these boxes which was successfully endured.

### MEMORANDA.

A. O. Young has disposed of his stoves and hardware business at Nebo, Ark., to Young & Webb.

THE STOVE AND HARDWARE BUSINESS of G. W. Carson & Co., Beaver, Ark., has been purchased by M. W. Swoope.

WM. G. CREAMER & Co., 96 John street, New York, are bringing out some new sizes and designs of hot air registers for fall trade. A feature of the register will be the arrangement of the regulating lever, which works easily and holds the valve in any desired position. They are adapted for use in the floor or side wall and as ventilating registers. Their Novelty, Convex and Keystone are specially suited for side walls and partition flues, as the face extends out into the room and the valves work outside of the flue, so that there is no frame extending into it to obstruct the air current. The valves are fastened to the face and as the face is bolted to the frame it is not necessary



Steel Fire Proof Security Boxes.

boxes a different principle is pursued from that followed in making the atandard safes. Instead of having the door composed entirely of metal and closing against the metal edges of the frame, thus forming a continuous metallic connection which is of course the best conductor of heat, these boxes have a space between the metal edge of the door and frame filled with fireproofing. Referring to the lettering on the cut, A is the metal door frame, B the fire proof back,

to set the whole register in a new building where they are liable to be broken or soiled.

A St. Louis special reports that the right of way has been purchased for a new belt line road, to be known as the St. Clair, Madison & St. Louis Belt Railway. The road is to run within a radius of 25 miles of St. Louis. The work of laying the tracts in Missouri will be begun at once.

# STOVE TRADE NOTES.

### The Chicago Stove Trade.

Quite an agreeable change can be reported in the character of the Chicago stove trade. In July and the early portion of August prospects were gloomy. The most depressing stories were in circulation regarding the condition of crops yet unharvested. A long period of drought had discouraged farmers, and to crown their misery hot winds blew over the fields for days, apparently deatroying all vegetation in a large part of the West. Farmers are proverbial pessimists, and their wails alarmed all who were brought in contact with them, and especially those who depended upon their patronage. It is, therefore, easily understood now how merchants became in a sense panicatricken and in many instances countermanded orders which they had placed for atoves for fall delivery. Ruined communities might need stoves, but there would be no money to pay for them. Hence it appeared to be wise to keep down stocks of goods and curtail sales rather than extend credits to the danger point and invite bankruptey. But as time wore on it was perceived that the reports of crop failures were exaggerated. Only Weatern Kansas and Nebraska were found to be in really serious condition. Other localities had resources which saved them from total impoverishment. quently a reaction act in during August which brought about the more healthy condition of trade now existing.

It can be said at this time that the volume of business is fully up to that of last year. Some houses report a slight increase as compared with their sales up to September 1, 1893. Not only are orders coming in quite encouragingly, but in noteworthy instances merchants have requested their countermanda to be reinstated. They report that an improved feeling is discernible among their former patrons, now that they find they have not been irretrievably ruined by the failure of only a portion of their crops. Higher prices for what they have raised will be partlal compensation, and of this they are assured. It is further found that Amerlcan farmers are by no means altogether dependent upon the crops of one season. Most of them are forehanded and have accumulated more or less from the results of their labors in previous years when they were treated more considerately by Dame Nature.

The remarks above made regarding the betterment of trade are of course comparative. The stove business is

still far from being in satisfactory shape. Foundries are, with rare exceptions, not running on full time, although this should be the busiest season of the whole year. A heavy increase could be made in the volume of business moving without causing serious inconvenience. But considering in how much better shape the Western atove trade finds itself than was anticipated only a month since, there is cause for rejoicing and not replning. If the season of 1894 winds up better than had been expected, all hands will enter upon the campaign of 1895 with increased hopefulness and renewed vigor.

## Buck's Stove & Range Company's Reception.

Buck's Stove & Range Company, St. Louis, Mo., were the recipients of a complimentary visit on Tuesday afternoon, 28th ult., by a large number of their city customers. This company have for some years past been enlarging and improving their plant until to day its capacity is more than double what it was four years ago. Quite naturally they have posted their customers from time to time of what they have been doing through newspaper and circular advertising. With the truism in mind, that "seeing is believing," about 75 St. Louis stove merchants made an impromptu call on Buck's Stove & Range Company on the 28th ult., as above stated. It was intended to be in the nature of a surprise, but some one let the "cat out of the bag" and they found the company ready to receive them. After being escorted through the entire works they were finally halted on the third floor of the main building and asked to sit down and rest a few minutes. A glance showed that the company had not been caught napping, but had really gone to work and prepared a sumptuous repast, of both dry and wet goods, for the delectation of their visitors. After a few words of greeting all ast down to the lunch provided, to which full justice was done. There were no set speeches, but informal talks were made by nearly all present, which were favorably received. Toward the evening the gathering began to disperse, but not before the com-pany's officers had invited them. one and all, to be present in August, 1895, at which time they would come as guests of the company, and the company would then surprise them. The only evidence of trade which appeared during the visit was in the banquet hall, where two Buck's Royal air tight heaters were in full operation, and the critical manner in which they were examined and the favorable remarks made concerning them proved that these heaters have already won a place in the hearts of the St. Louis trade. Some of the guests suffered from headache and were ungracious enough to blame the excessive heat thrown out by these heaters as the cause, and rather than have any disagreement about the matter the company let it go at that.

### Floyd-Wells & Co.,

of Royersford, Pa., have just issued from the press their 1894-95 catalogue and price-list of stoves, ranges and heaters. It is a volume of nearly 130 pages, bound in flexible covers, with aide title in ailver upon a crimson ground. In offering this publication to the trade the manufacturers call particular attention to their extensive line of Irving ranges and to the numerous additions which have been made since the last issue of their catalogue. These new goods include the Grand Irving, Rose Irving, Glen Irving, Bold Irving and Lady Irving. These are goods of sub-stantial appearance and tasteful ornamentation, the oven door being embellished with a panel carrying the name "Irving" in nickeled letters. One of the apecial features of construction is the company's patented reverberatory oven, by which a continuous rotary circulation of the air in the oven is secured, independent of that obtained by their method of oven ventilation. By this circulation of the air in the oven the company claim that the heated air is conveyed to the article to be cooked, this action being caused by special convection flues in the oven plate. As one current of air is partly cooled by absorption in contact with the thing cooked, it is driven away by another current of highly heated air, and in this way the process of cooking is hastened. Another feature is a corrugated oven plate by which increased radiating surface is secured. In the Loyal and Grand Irving ranges a detachable grate rest is used, the awivel locking device being so constructed as to readily take out or replace the grates without disturbing the water front or linings. These ranges are made in a number of sizes and the usual modifications. In connection with each stove are given full descriptive particulars, together with oven capacity, prices and telegraphic code words. The goods telegraphic code words. The goods noted include the New Camaret, the Majesty. Dome, Concord, Charter, Holly and Home—the latter being a medium sized portable range fitted with either vertical or horizontal boiler, as may be preferred. The cook atoves are represented by the Valley Queen, Justice, Progress and Miner's Pick. Several pages are given up to illustrations of pine abeliance. tions of pipe shelves of various designs, and the four pieces which constitute a set of hollow ware. The second half of the catalogue is devoted to heaters. with the Rosemont occupying the leading place. This is a square base burner, made in four sizes, and is offered the trade unchanged from last year except as to a few minor features which have been perfected. The stove is of graceful outline and rich ornamentation. is made as a single and double heater. The New Rosemont is another member of this general class, as is also the Rosemont Parlor, a full return base burner. The Jewel Rosemont, the Star Rosemont, the Fame Rosemont, the Radiant Gem, the Darby, the Bloom, Volcano and the Bright Oak are all attractive heaters. The Volcano is referred to as being the first of its kind on the market, and the company expect that it will meet with a large sale. The Social is a richly treated Franklin stove, which has been on the market for several years and established itself in the confidence of the trade. "Hints and Suggestions," a list of brick linings which the company can furnish, the names of stoves and heaters which will hereafter be made to order only and not earried in stock, and an alphabetical index complete the catalogue.

### Crea, Graham & Co.

We have received from Crea, Graham & Co., Allegheny, Pa., a copy of an illustrated catalogue and price-list, which they have recently distributed to the trade. It is printed in blue ink npon a good quality of paper and is bound in colored paper covers. In their announcement to the trade the company call attention to various improvements and additions which have been made to their lines, and intimate that purchasers take no risks in buying Royal stoves. The leading place in the catalogue is given to the Crown Royal, a six hole range with ventilated oven, right or left hand feed, extra plates and sheet flues. It is followed by the Vesta, another six-hole range, which has been remodeled this season. The Richmond and the Prize Royal are also considered. Among the cook stoves we notice the Royal, for coal or wood, which has been improved for 1891; the Grand Royal; the New Royal, made in three sizea, for coal, and the Richmond, a cheap four-hole construction. heaters occupy the 16 pages which follow, attention being invited to the Queen Royal, an attractive Franklin stove, this being one of the latest additions to the company's assortment; the New Royal parlor, a large size open Franklin, which has been improved this season; the Clifton, a new cottage parlor; the Art Royal, a surface burner, made in two sizes; the Modoc, a heavy cannon stove; the Chieftain and the Laundry. The catalogue concludes with illustrations of the Royal furnace, made in seven sizes, and a list of hollow ware, a table showing the weight of castings used for repairs and directions for operating the stoves.

### The Chicago & Erie Stove Company

of West Twelfth street, Erie, Pa., send us a copy of their combined catalogue and price-list. They have added to their already extensive assortment many new specialties combining the latest improvements. The company do not il lustrate all of their goods, but confine the engravings to those of the leading specialties. In this way the catalogue is reduced in size and rendered more convenient for reference. The printing is in bluish ink, upon good paper, and the binding is in colored paper covers. The opening pages call attention to the Superb Helper, wrought steel range, made with patent double acting balanced oven door, the joints in the oven being double and very strongly braced and supported. The range is lined with sebestos and provided with heat reflectors and air chambers under the oven. These tend to make the oven act quickly and satisfactorily. The range is shown in a variety of styles, and in connectien with it is a plan view of the patent device employed for preventing oven bottoms from buckling. A new and heavy steel hotel range is one of the more recent additions to the company's goods, this

having a large oven and embedying the latest improvements. In the Quick Helper the manufacturers state that they have successfully combined the many advantages effered by both steel and cast ranges. The latest improvements are incorporated and the stove is offered in a variety of styles and sizes. Among the cast iron ranges we find the Duplex Invincible, made from new patterns and designs, and having large fire box, with ample flues, extended fire chamber for wood, ventilated oven, &c. The Capital Helper, made in three sizes; the Peerless Helper, a first class range, with apecial reference to burning wood; the Alert Helper, the Renown and the Fairmont-the latter being a four-hole range for soft coal or wood. The cook stoves include the Superior Helper, with cut feed for coal; the Forest Helper for wood and the Farmer's Helper, a four-hole wood cook, made in two sizes. The heating atoves are shown, with the Art Invincible occupying the place of honor. This is of good proportions and attractive ornamentation, it being only necessary to add a double heating collar and a damper to transform the stove into a double heater. The Brilliant Helper la another double heater of haudsome ornamentation and modern construction. The Duplex Helper, the Invincible Helper and the Royal Helper are parlor stoves of rich design, the decorative features involving the use of niekel and art tile. Following these we find Cottage Parlor, Franklin, Oak and Laundry stoves. The catalogue concludes with a line of handsome gas stoves adapted for heating and cooking purposes. The company state that their furnaces and gasoline atoves are shown in a separate catalogue.

### ODD PLATES.

THE ETNA HOT AIR FURNACE is the subject discussed in a 36-page pamphlet just issued from the press by Wood & just issued from the press by Wood & Bishop Company, 41 and 42 West Market square, Bangor, Maine. The furnace is made in portable form as well as for brick setting, and has a lever realized draw content grate mounted on working draw center grate mounted on rollers, cast iron shield, large clinker door, upper and lower cup joints, self cleaning radiator, sectional lire pot and castings of such form that they will not crack. Reasons are given in the catalogue why dealers should purchase the Etna coal furnace and there are suggestions offered for those who intend to buy so that the makers may know the size of furnace, registers and hot air pipes required. A sketch of the main floor plan of a cottage is presented, showing the positions of chimneys, doors and registers. Following this are floor plans of churches, with hints as to the method of warming. A large number of testimonial letters are also included in the pamphlet, these occupying something like 22 pages. At the close of the work is an illustrated At the notice of the Etna hot air and hot water heater, which is made in six sizes.

THE JOSEPH BELL STOVE COMPANY of Muncle, Ind., are about to enlarge their nickeling department in order to meet the increasing requirements of their trade. The Muncie newspapers state that they will also be obliged to materially increase the number of men employed in the works. It is gratifying to note such evidences of improvement in business.

THE NORTHWESTERN STOVE REPAIR COMPANY, with main office and works in Chicago, have opened a branch atore

at 509 North Fourth street, St. Louis. They will carry a full line of atove repairs, mica, stove blacking, stove putty, stove lifters, &c. 11. R. Gray is the manager of the branch.

The BLY GAS BURNER COMPANY is the name of a concern recently incorporated at Sioux City, Iowa, for the purpose of manufacturing and selling the Bly patent gas burner for cooking and heating purposes. The capital stock is \$25,000, with the privilege of increasing it to \$75,000. M. M. Gray is president, B. F. Bly vice-president and O. C. Servis accretary and treasurer.

THE JOSEPH BELL STOVE & RANGE COMPANY of Muncie, Ind., and Wheeling, W. Va., are vigorously pushing the sale of the Arlington Oak, a tastefully decorated heater embodying the latest features of utility and durability. It is made in three sizes, for coal or wood, and the manufacturers state that it is offered at a low price.

THE COLDWATER OIL STOVE COM-PANY of Coldwater, Mtch., are offering the All Right oil atove, equipped with their patent rewleking device, which is simple and easy of operation. The No. simple and easy of operation. The No. 20 size of the All Right is especially adapted for use in bathrooms and small sleeping rooms. The Sunbeam oil stove is referred to by the manufacturers as a little furnace on casters, and will heat a quart of water in 71 minutes. All Right and Sunbeam are tastefully ornamented with nickel, rendering them attractive heaters wherever employed. The company have agents all over the country and are in a position to handle orders promptly.

THE SMITH & ANTHONY COMPANY have resumed active operations at their foundry at Wakefield, Mass., following a brief shut down.

The Omaha Stove Repair Works of Omaha, Neb, are distributing a circular letter to the trade calling attention to the fact that they as wholesale jobbers are in a position to promptly supply stove repairs, mica and stove polish.

THE ELLWOOD GAS STOVE & STAMPING COMPANY, Ellwood City, Pa., manufacturers of gas and gasoline stoves, have just received some large orders for their goods for shipment to Kansas City and Cleveland. Their plant has been put in full operation in all departments, and will be fully employed for some time to come in filling these orders. This concern will shortly commence the erection of an iron truss building, 96 x 84 fect in size, to be used for japanning goods.

THE VAN WIE GAS STOVE WORKS, Rockford, Ill., were destroyed by fire on September 3. The damage incurred is placed at \$30,000, said to be covered by incurance. The works were unfortunately situated beyond the reach of the city water mains.

"Are you harry?" appears in heavy black type on a four-page folder which reaches us from the Lehlgh Stove & Mfg. Company, Lehighton, Pa. The folder carries an illustration of the Lehigh six-hole range, which is made in four sizes and 32 varieties. It is of substantial appearance, richly ornamented and embodies features which are calculated to contribute happiness to the household. The folder states that "happiness in this world is very largely a question of good health. Good health is, to a great degree, simply a matter of good digestion. Good

digestion cannot easily be maintained without good cooking. Good cooking requires not only skill and experience, Good cooking but proper appliances, the first of which in importance is a good range." The fourth page carries lines entitled "The Rustic Wooing," being copyrighted by the Lehigh Stove & Mfg. Company. The lines tell of a young rustic making love to a milkmaid, who promises to marry on condition that a nice kitchen range be purchased upon the commencement of housekeeping. The following apring they are married and friends come from a long distance to attend the ceremonies. Among the bride's presents is a new Lehigh range of the most improved style. Accompanying the folder is a balancing butterfly, an advertising novelty which has recently become popular in various lines of trade.

HENRY N. CLARK, 103-105 Black-stone street, Boston, Mass., is distributing a 32-page catalogue of heating atoves, which are offered in great variety. The leading place is given to the Premlum Square, a neat surface burner with oven attachment, and is followed by the Century Square, made in two sizes; the Belmar surface burner, without oven; the Glory, a sheet iron cylinder surface burner of low price; the Century and Gem cylinder stoves; the Beauty surface hurner, made in several sizes; the Flirt, shown with and without extra drum; the Columbian Prize, a neat open Franklin, made in three sizes; the Woodlawn cottage; the Glenwood, a neat box stove, made in four sizes; the Dash and Red Cloud cannon stoves. Illustrations are also given of the Improved Commander furnace. A circular which accompanies the catalogue illustrates the Parlor Dome oil heater, made by the Central Oil Gas Stove Com-

ACCORDING TO PRESS ADVICES from Spring City, Pa., the mounters employed at the works of the Yeager-Hunter Stove Mig. Company in the place named are making full time and the molders are working three days a week. Orders for stoves are said to be

THE LEHIGH STOVE COMPANY Of Lehighton, Pa., are the subject of a column article which appeared in the September 1 issue of the Carbon Advocate, published at the place named. The article describes a visit of a representative of the paper to the works of the company and what he saw there. Reference is also made to the leading producta of the company, special mention being made of the Lehigh Valley ranges and the Radiant Lehigh heater.

According to press disparches from New Castle, Pa., the trouble at the works of Baldwin & Graham is at an end, and the men have returned to work at the old wages. It is said that Pres. Martin Fox of the Iron Molders' Union went from Cincinnati to New Castle and had a conference with the proprietors of the works in which the books and records of the concern were open for his inspection, showing that the company were paying as high, if not higher, wages than other manufacturers.

THE PHILLIPS & CLARK STOVE COM-PANY, Geneva, N. Y., have resumed operations and are running full time with enough orders in sight to keep the entire force busy for a considerable

ment to the effect that there will be a special meeting of the stockholders of the company on Tuesday evening, September 18, for the purpose of considering a resolution to increase the capital stock from \$20,000 to \$50,000.

A PROMINENT AND VENERABLE FIG. URE in the stove trade has passed away. We regret to record the death of Amos C. Barstow, president of the Barstow Stove Company of Providence, R I., who died on Wednesday, September 5. Mr. Barstow, who was 81 years of age, had been actively engaged in the manufacture of stoves and furnaces for nearly 60 vears.

THE WORKS of the Joseph Bell Stove & Range Company, Wheeling, W. Va., are running full, with a good trade in prospect.

THE LITTLEFIELD STOVE COMPANY of Albany, N. Y., resumed operations last week at their works with a force of 30 men. When their plant on Pleasant avenue was closed in June, the molders and mounters were laid off, but the other hands were kept at work on the improvements to the buildings and machinery that have been in progress dur-ing the summer. We understand that additional men will be put to work as rapidly as circumstances will permit.

BENJAMIN CARVER, a leading citizen of Royersford, Pa., died in that town on September 4, at the age of 52. Mr. Carver had for long been connected with the Grander Stove Works of Royersford. He was burgess of the town, a member of the School Board, and actively interested in various local en-H

THE JOLIET STOVE WORKS, Joliet, Ill., are sending to their friends and customers paper backed blotters pre senting September calendars, together with pictures of Moore's air tight heat-ers. The advantages of these stoves are alluded to. The same firm send out other circulars relating to Moore's air tight heater, and another special circular gives illustrations and brief description of Moore's Fidelity range for soft coal or wood, which is made in 18 styles and sizes. Also Moore's Extra for soft coal or wood.

THE GIRARD STOVE & FOUNDRY COMPANY, Youngstown, Ohio, distributed at the Youngstown Fair neat little circulars directing attention to the Adelbert stoves and ranges of their manufacture. They mention that they make a complete line of these goods, and on the back of the circular Stambaugh & Thompson Company announce that they handle a full line of Adelbert atoves and ranges.

THE TRADE in general, as well as many friends, will learn with regret of the death of Charles F. Whiting, which took place at his residence in Orange, N. J., on Sunday, September 2. Mr. Whiting was connected with the stove trade from boyhood. At the time of his death he was employed as a salesman for Eugene Munsell & Co., 218 Water atrect, New York, with whom he had been for about five years. His funeral took place from his home on Tuesday, a large attendance of the stove fraternity being present.

II. II. WATERMAN, who has been for many years connected with the Central Oil Gas Stove Company, will now represent the Cleveland Foundry Company of Cleveland, Ohio, at 107 Beckman street, F. A. WILLIAMS, sccretary of the Glrard Stove & Foundry Company, Girard, Ohio, has issued an announce- Mr. Waterman is particularly well

known to the stove trade in the Southern States, where he traveled many years. He has a good box of cigars in his drawer, which he will be happy to share with his numerous friends, whom he will be glad to see at his new address. The Cleveland Foundry Company's store will be in shape for business about the middle of next week when a full line of the gas and oil heating and cooking stoves and other articles manufactured by the concern will be ready for inspection. The store is very favor-ably located in the heart of the New York stove district.

WHAT MIGHT HAVE BEEN & serious fire broke out on the 1st inst. in Cribben, Sexton & Co.'s stove foundry, at Erie and Market streets, Chicago. One of the cupolas became overheated and ignited the roof timbers. The city fire department extingulahed the flames after considerable damage had been done to the roof, but fortunately before the fire had apread to other buildings. No patterns were destroyed, and the operation of the plant will hardly be interfered with. The damage is estimated at about \$1500.

R. Robinson & Sons, 105 Lake street, Chicago, have issued a neat little illustrated catalogue, descriptive of Splendid oil heaters, for which they Inustrated catalogue, descriptive of Splendid oil heaters, for which they are sales agents. Five patterns are illustrated: The Splendid B 8, the Splendid B 10, the No. 15 Splendid, the 215 Novelty Splendid and the No. 25 Parlor Splendid. It is an unusually large assortment of oil heaters and therefore adapted to meet all testes and therefore adapted to meet all tastes and requirements.

FRANK F. PROCTOR, accretary of the Culter & Proctor Stove Company, Peoria, Ill., died on August 4, aged 34

A method of firing with liquid fuel is described in Chamber's Journal. It has lately been adopted for domestic purposes in some houses at Baku, the capital of the Russlan petroleum district. A tank near the top of the house contains the oil, which is led by 1 inch tubes to the various stoves. Each stove is provided with a small cast iron disk or plate placed in front of the stove door, which is plerced with a small opening, so as to create a strong draft. Upon this plate the oil slowly drips, and when once the metal plate is warmed and the supply of oil regulated, it burns without any further attention. The oll employed is the residue from the petroleum after the more volatile elements, gasoline, benzoline, kerosene, &c., have been driven off by distillation.

At San Antonia, Texas, a company have been organized with a capital of \$1,000,000, under the name of the Rio Grande Valley Canal & Irrigation Company, to establish a system of irrigating canala in the lower border countles of Texas. Several hundred thousand acres of arid lands are to be brought into cultivation, the water being drawn from the Rio Grande.

The railroad journals state that steps are being taken for a close traffic alliance between the Big Four, the Chesapeake & Ohio and the Southern Railway Company. It is also said that arrangements are being conducted whereby the Southern Railway and the Chesapeake & Ohio will eventually agree to stop the cutting of rates and will reduce expenses at common points.

### HEATING & PLUMBING.

### NEW WORK AND CONTRACTS.

THE CONTRACT for heating the new post office, Norwich, Conn., has been swarded to J. P. Barstow & Co.

THE HARTFORD HOT WATER HEATER COMPANY, Hartford, Conn., are putting one of their heaters in Shannon's drug store on Trumbull street, Hartford, and one in the greenbouse of President Woodruff of the Seth Thomas Clock Company, Thomaston.

GEORGE M. AINSWORTH, Athol, Mass., has the contract to do the plumbing, gas piping and the work of putting speaking tubes in the new school house.

CONODON BROTHERS, East Greenwich, R. I., have secured the contract for steam heating Judge Lewis' house, Kingston, R. I.; also, they will place a Richmond hot water laundry range in Academy Building, East Greenwich, R. I.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until September 20, for the plumbing, gas piping and electric wire conduits for the United States Custom House and Post Office Building at Newark, N. J. Drawings and specifications may be obtained from the Supervising Architect, Washington, or from the superintendent at Newark, N. J.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until September 25, for a low pressure hot water heating apparatus for the United States Custom House and Post Office Building at Galens, Ill., in accordance with drawings and specifications, which may be obtained from the custodism at Galena, Ill., or from the Supervising Architect at Washington.

THE F. A. HEADSON COMPANY of Wausau, Wis., have secured the contract for putting in a steam heating plant in the Antigo Court House and Jail.

A CONTRACT for heating the new Citizens' Bank Block, at St. Johnsbury, Vt., has been awarded to A. D. Noyes & Co. of that place.

B. F. Shore, Wilmington, Del., was awarded the contract for the heating apparatus of the Clayton House, his bid being \$6773.87.

MATT. WATSON, Salina, Kan., has secured the contract for putting in the steam heating apparatus at the Ottawa National Bank.

E. E. Morrow, Santa Rosa, Cal., was given the contract for plumbing at the County Home.

Baker & Smith, New York, were awarded the contract for heating the new school building at West Hoboken, N. J., for \$3168.

W. H. Dunn, a Cleveland architect, has been in Lorain, Ohio, looking over the Wagner Opera House, which he is to reconstruct and into which he is to introduce a new heating system.

THE BUILDING COMMITTEE of the Board of Control decided to award the contract to put in steam heating in the Ninth Ward School Building, at Allentown, Pa., to Evans, Seagreaves & Co., for \$2215.

RECENT IMPROVEMENTS in the Doylestown, Pa., public school building inthat state.

clude a new system of steam heating introduced by Rufe Brothers, which was so designed as to retain intact the old system of ventilation.

A CONTRACT for the boiler and steam fitting in the County House, Battle Creek, Mich., was awarded to A. F. Bock of that city.

A contract for heating the Court House, at Alliance, Ohlo, was awarded to Theobald & Co., Canton, Ohio, for \$7784. The contract for the boilers was awarded to Welton Brothers of Canton for \$1649.

L. B. Harton, Alliance, Ohio, has been awarded the contract for putting in the heating apparatus for the new hospital at the infirmary, his bid being \$1924.

THE CONTRACT for heating, ventilating and plumbing the High School Building at Northboro, Mass., has been awarded to O'Toole Brothers of Clinton, Mass.

F. W. CODDINO, Worcester, Mass., has secured the contract for steam heating the alms house at Gardiner, the price being \$600.

THE COMMON COUNCIL OF PROVIDENCE, R. I., have appropriated \$2000 additional for heating and lighting the Boyden atreet school building.

T. P. AITKIN has been awarded the contract to put in the heating apparatus in the Eighth District School House, at Manchester, Conn., the contract price being \$430.

THE CONTRACT for heating the new Congregational Church, Gloversville, N. Y., was let to H. J. Jenkins, who will use two large Economy heaters.

MICHAEL DILLON is putting new plumbing arrangements in the residence of Joseph Martin, Church street, Doylestown, Pa.

The Secretary of War having authorized the construction of a military post near Little Rock, Ark., bids will be received for the work, including plumbing, heating and gas piping.

THE EXETER MACHINE WORKS, Exeter, N. H, have been awarded the contract for heating the Rockingham National Bank, at Portsmouth.

THE CHICAGO HEATING COMPANY, 40 North Clark street, Chicago, have the contract for hot water heating in the residence of J. Doyle, Washington boulevard and Kedzie avenue.

Two LARGE (No. 26) Gorton patent side feed hot water boilers will be used for heating the Fogg Lodging House recently erected on Fifty-third street near Eleventh avenue, New York. The installation is made by Gillis & Geoghegan of this city.

KEUM BROS. & MERTZ, 289 East Kinzie street, Chicago, are to install a tubular boiler power plant for the Price Flavoring Extract Company, Illinois and Cass atreets.

JACOB G. WEBER, 244 North Clark street, Chicsgo, has the contract for the plumbing and sewerage in the residence of E. Hoffman, 462 Wabash avenue.

GEO. L. RCOD, 79 Lake street, Chicago, ia to place a Prince Royal combination heater in the residence of G. W. Meeker, North avenue and Astor street.

ELLIOTT BNOTHERS of Colfax, Ill., have opened a tin shop at Arrowsmith, that state.

### News and Notes.

The anthracite coal sales agents met in New York City on August 29 and decided to fix the output for September at 2,500,000 tons. No action as to prices was taken.

It is stated that arrangements have been made to ship 100,000 tons of bituminous coal this fall to Brazil from Philadelphia.

The Swiss Federal Council has approved the scheme for a Jura-Simplon railway tunnel through the Simplon, to cost \$10,960,000. The plan is to be submitted for the approval of the Italian Government.

During the first six months after the opening of the New Corinth Canal the receipts little more than balanced the expenditure.

In a report sent to the State Department by United States Consul-General Williams, at Havana, that official states that no previous period in the history of the Cuban sugar industry has been to disastrous as that beginning in August, 1893. The planters suffered heavy losses, although the quantity of sugar produced was the largest recorded on the island. A general report on the industry, which is to be laid before the Spanish Cortes at the next session, calls for remedial legislation. It asserts that, with very few exceptions, the sugar works not only yield no profits, but do not meet expenses, including interest.

English capitalists are said to have bought large tracts of coal lauds in Southern Colorado, which are to be developed immediately.

Heavy rains have damaged Alabama's cotton crop 20 to 25 per cent.

The Russian Government has decided upon the construction of a line of railway from Samarcand to Khokand via. Khodschend. It is expected that the line-will give a great impetus to the cotton trade of Asiatic Russia.

The war news from the East is puzzling. Both sides claim victories at the same time and place; but it would appear that the fighting, so far, has not been very extensive. Energetic military preparations, meanwhile, are being made by both China and Japan.

The Chief of Naval Ordnance has postponed the test of small arms for the navy until October 1, owing to the weapons of the competing manufacturers not being ready on September 1—the day originally fixed for commencing the trials.

English shareholders of the Chignecto ship railway of Canada having subscribed \$1,500,000, it is hoped that the work may yet be completed. A provisional contract to furnish the railway has been awarded, contingent on the desired extension of the time by the Government.

The Raven Stove Polish Company, \$2 lake street, Chicago, are distributing eards advertising their Red Fire Tinsel, intended for use by stove manufacturers and merchants on their sample stoves, giving them the appearance of being in actual operation with firea glowing. A small piece is fastened on each card. The color is remarkably brilliant. This tinsel is made of copper and is indestructible. It is placed behind the mica and fastened in with the mica holder. It is furnished in sheets  $4\frac{1}{4} \times 11$  inches in size.

# TRADE REPORT.

### The Iron Market.

The Connellsville Coke strike is now a "closed incident," and the serious question is whether the Iron trade of the country must again return to the state of affairs which prevailed before that senseless struggle. A review of the conditions prevailing before the atrike and now dominating the markets brings out this one salient fact, that consumption is greater now than it then was. The soft condition of the markets proves that it is not sufficiently great to hold out hopes of an early advance, and the grave question is whether there will be demand enough to prevent a decline, possibly back to the old figures, for Bessemer Pig and Steel Billets.

Ore is actually cheaper than it was, Messaba having been offered lately as low as \$2.10. Coke is still unsettled as to values, no large contracts having been placed lately. So far as Raw Material is concerned there is, therefore, little change in the situation.

In Manufactured Iron and Steel the marketa are generally very quiet, and there is a distinct falling off in the demand, which is reflected in a weakening of prices. It is the old atory that the large mills insist upon being fully employed, and sacrificing mercileasly to attain that end.

To judge from the busy condition of the Cast Iron Pipe foundries, the amount of municipal work going on is large. Town and county bonds sell better than discredited railroad securities.

Plg Iron.—There are some inquiries in the New York market, but the movement is as yet very moderate. We quote standard branda \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12.25 for No. 1; \$10.50 @ \$11 for No. 2; \$10 @ \$10.25 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25.

In the Philadelphia market the demand for Pig Iron is not quite as "snappy" as it was two or three weeks \*go, and things may be said to have almost fallen into the old time monotony. Furnaces are well sold up however, and there are no inconvenient accumulations, but there is less disposition to provide for the future, so that the market while not positively weak, is dull and monotonous. General quotations are about as follows for Philadelphia and nearby deliveries:

Slandard No. 1 Foundry X	\$12.50	@ 8	13.00
Standard No. 2 Foundry X	11,50	a	12 00
No. 2 Plain	, 10.75	0	11.00
No. 1 Soft	. 11,50		
No. 2 Soft		0	11.00

Our Chicago advices indicate that Local Coke Iron has been more active, the sales for the week including several round lots. Consider ably more business is in sight owing to the gradual extension of the territory covered from that producing center. Shipments are very heavy, the leading producer having delivered the last month the largest quantity sent out any month since June, 1893. Southern fur-

nace agents report a little better demand for carload lots and are inclined to feel confident that the near future will bring them more business. One sale of 100 tons of No. 2 Soft was made for immediate delivery at \$7.25, at furnace. Lake Superior Charcoal is in somewhat better demand in carloads, but inquiries for round lots are still wanting. Quotations are given as follows for cash:

Lake Superior Charcoai	\$14.25 @	\$15.00
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10.00 @	10,25
Local Coke Foundry, No. 8	9.50 @	10.00
Local Scotch	10.25 @	10.50
Cocal Scotch	13,00 @	13.60
Ohio Strong Softeners No. 1		40.00
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	@	1.13#
Southern Coke, No. 2	10.75 @	11.25
Southern Coke, No. 3	10.50 @	10.75
Southern, No. 1. Soft	10.75 @	11.25
Southern. No. 2, Soft	10.50 @	10.75
Southern. No. 2, cort	ã	
Tennessee Charcoal, No. 1		
Tennessee Charcoal, No. 2	@	
Alabama Car Wheel	17.50 @	
Jackson County Silvery	15.25 @	
Other Obio Silvery		14.50
Owner on the contract of the c	_	

There is a wide difference in views as to the future of the Pig Iron market in the Pittsburgh district. Somein the trade believe that the decline is only temporary, while others hold to the belief that prices will go still lower. It would seem that the Finished Material market is the key of the situation. If there is a good demand for Finished products, thus creating an active Steel market, furnacemen may be able to hold prices where they are, but unless there is a very much heavier demand made on the finishing mills, it is not unwise to assume that Pig Iron will be lower. A prominent Valley furnace, making a high grade of Foundry Irov, canvassed this market pretty thoroughly last week and took a number of orders on the basis of \$11.75, Pittsburgh, for No. 1 and \$10.75 for No. 2. Quotations are given as follows:

Cincinnati reports are to the effect that a fair volume of business has been done during the week, nearly all which was in that district, the demand coming largely from the Iron Pipe works, which seem to have an unusually good demand for Pipe for this season of the year, and for small sizes, and able to obtain better prices than have prevailed during the summer. The demand is largely for No. 2 Foundry, No. 2 and No. 1 Soft, but the lower grades are selling well, and the market may be called steady and firm. Prices are the same for forward delivery, running to the end of the year as for current delivery, and there have been sales covering three months of next year on the same basis. The Iron Pipe works are melting much metal, but the Stove works are doing more work. The agricultural works are not idle, but have not begun to work actively. Quotations

are as toriowa.	
Southern Coko. No. 1 \$10.50 @ \$	10.75
Jouthern Coke, No. 2 5.17 W	10,00
Southern Coke, No. 3 9.25 @	9.50
Ohio Soft Stone Coal, No. 1 14.34 65	15.50
Ohio Soft Stone Coal, No. 2 14.00 @	14.50
Lake Superior Coke, No. 1 12.30	13.00
Lake Superior Coke, No. 2 11.50 @	12.00
Hanging Rock Charcoal, No. I., 10.0 @	17.00
Hanging Rock Charcoal, No. 2., 15.50 @	16.00
Tennessee Charcoal, No. 1 18,00 @	13.50
Tennessee Charcoal, No. 2 12.00 @	12.50
standard Southern Car Wheel 10.20 @	17.00
Lake Superior Car Wheel and	) 5 7 E
Malloable 15.25 @	15 75

The past week is referred to as not having been particularly active in the St. Louis Pig Iron market. Sales have been limited both in size and quantity, and yet there is a number of inquiries in the market which will very likely result in business. There is no disposition io shado prices, as it has been pretty thoroughly demonstrated that sales cannot be made simply because the Iron is cheap. The situation shows improvement, and, while no great advance in prices is looked for, a slight improvement over io day's prices does not seem unreasonable to expect. Sales during the week were made on the basis of prices as quoted herewith, which are for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foun-	k11.00	<u>a</u>	\$11.25
Bouthern Coke, No. 2 Foun-	10.05	_	10.50
dry Southern Coke, No. 3 Foun-	10.20	•	10.00
dry	9.75		10.00 17.00
Southern Car Wheel	10.00	en.	11.00

### Metal Market.

Pig Tin. — Comparatively little change in prices has taken place during the week, and dealings on speculative account reached only a moderate total. Purchases by interior jobbers have increased somewhat, however, and business with consumers has been more liberal. Prices for large lots, at this writing, are about 16¢ net cash, while for small parcels of Straits Pig 17¢ (2) 17½ (3) It is asked by jobbers and retail dealers.

Copper.—New business has been on a moderate scale, and the demand in general very slack. It is said that some of the prominent Lake Superior producers have, however, contracted with purchasers to furnish some 10,000,000 or 15,000,000 lbs during the rest of the vear, at a price said to be about 9¢ \$\overline{\psi}\$ lb. Prices for small lots are unchanged at former quotations.

Sheet Copper.—The situation of Manufactured Copper shows little change. Orders and inquiries continue moderate and still below the average. Prices are steady as per list.

Pig Lead.—The market is fairly firm, because of moderate offering. Only routine business has been done this week although inquiry is rather more free. Near future deliveries are somewhat uneven and rather weak, with freer offering. For small lots of American Pig from store  $3\frac{\pi}{4}\phi$  @  $3\frac{\pi}{4}\phi$  is a fair quotation. Manufactured Lead is quiet.

Spelter. — Hardly any change har taken place in the market here. The improvement continues slow, and consumers are extremely indifferent. Prices for small parcels remain at about  $4\frac{1}{4}\phi$  for ordinary Western brands.

Antimony.—Spot prices for moderate quantities are about 91¢ for Hallett's and 101¢ for Cookson's. There has been little business outside the ordinary jobbing distribution.

Solder.—Prices for small lots have been marked down during the week to 12¢ % lb for \$\frac{1}{2}\$ and \$\frac{1}{2}\$, and 10\frac{1}{2}\$\$ @ 11\$\$ for No. 1.

Tin Plate —Spot dealings in the wholesale market have been on a rather moderate scale and chicfly at the prices that ruled a week ago. Jobbers report, nevertheless, that purchasing for immediate delivery by the smaller consumers has been very fairly active, particularly in the line of Roofing Plates. In some descriptions of Plates stocks in dealers' hands are running very low, and consumers are obliged to wait the delivery of orders until the Plates can be withdrawn from bond, which is just now a somewhat lengthy operation. Futures are quieter, and, while not positively lower, prices in this market seem rather easier. In the West the trade in Tin Plates is reported as being quite heavy.

A London cable of September 5 to The Iron Age reports as follows in regard to the British market: Tin Plate has been quiet, and prices are easy. Home inquiry is fair, and there is some call for squares and odd sizes for the oil trade. American buyers, as a rule, are holding off. Makers' quotations remain about the same as they were last week.

Sheet Iron.—The demand for Black Iron remains about the same as last week. As far as jobbers are concerned, the trade in this material is dull. Manufacturers' agents appear to book enough orders to keep their mills busy, but rumers are prevalent to the effect that Black Plates for tinning are becoming somewhat of a drug. Galvanized Iron is in good demand, with prices firm, although no effort has been yet made towards a general advance. Many mills prefer not to be able to make deliveries on new orders under a month or six weeks. For small quantities 75 % off is the usual rate.

Dr. David T. Day, Chief of the Division of Mining Statistics and Technology of the United States Geological Survey, has issued the preliminary statement of the production of Spelter for the first six months of 1894. It was compiled by C. Kirchhoff, special agent:

Production of Speller Semi-Annually (Short Tons).

States.	First half 1892.	Second half 1892.	First half less.	Second half 1893.	First half 1894.
Eastern and Southern.	6,901	7,594	7,380	5,304	5,064
Illinois and Indiann	15,483	15,900	16,427	13,169	13,392
Kansas	14,161	10,551	13,269	9,546	11,250
Missouri	8,954	7,713	8,718	5.019	6,455
Totals	45,499	41,761	45,794	33,038	36,164

A partial statement of stocks shows a decline from 3089 tons on January 1, 1894, to 2859 tons on July 1, 1894.

Pittsburgh Reduction Company, Pittsburgh, Pa., manufacturers of pure aluminum, have located a branch office in New York at 4 Havemeyer Building, corner Church and Dey streets. It will be in charge of James C. McGuire, New York agent and consulting engineer. Their new works, at Niagara Falls, N. Y., will be completed very soon. They will continue to operate their present works at New Kensington, Pa.

ELASTIC ROOF CEMENT, asbestos furnace cement and asbestos stove lining are the three articles to which especial attention is directed in an advertising card distributed by the Troy Paint & Color Works of Troy, N. Y.

### Chicago Report.

Scrap.—Some kinds of Scrap are becoming scarce, particularly Borings and Turnings. This is caused by the small quantity coming on the market, which falls below even the limited quantity consumed. Dealers quote the following list of buying prices, Chicago delivery:

•		
P	er net ton.	Per Ib
No. I Wrought Scrap	\$7.00	
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)		
Burnt Iron and Grate Barr		
Sheet Iron and Hoops	. 2.00	
Plow Steel and Breaking	nor	••••
Stock		
No. 2, such as Shovels, Hoo	94	••••
&c		
Old Boilers-whole (Iron).	8.09	
" (Iron)—cut in sing		
Sheets and Rings		
Old Gas-Pipe and Boil		••••
Tubes		
Cast Borings	3.00	
Turnings	4.00	••••
Horseshoes	7.00	
Copper Bottoms	1.00	81/4
Copper Clips and Heavy		51/6
Heavy Brass	•• ••••	7
Light Brass	•• ••••	5360
Pine Load	• • • • • • • • • • • • • • • • • • • •	3 0
Pipe Lead	•• ••••	$2\frac{1}{4}$
Tea Lead	•• ••••	2 🛊
Zine	•• ••••	2 #
Rubber	•• ••••	31∕4¢

Anthracite.—Very little is doing, and prices are still weak. Carload lots of 12 net tons or over are nominally quoted as follows:

	Grate.	gg, Sto.
Chlcago, Ill	\$5.25	and Ch. \$5.50
Milwaukee, Wis	5,25	5.50
Kansas City, Mo	8,45	8.70
Council Bluffs, Iowa	8.45	8.70
Lincoln, Neb	8.61	8.85
Sioux City, Iowa	8.45	8,70
Aberdeen, S. Dak	8.50	8.75
Dubuque, Iowa	6,55	6.80
Madison, Wis	6.75	7.00
St. Paul, Minn	7.75	8.00
Burlington, lowa	6,75	7 00
Des Moines, Iowa	8.20	8,45
Davenport, Iowa	6.55	6.80
St. Joseph, Mo	8,45	8,70
Leavenworth, Kan	8.45	8.70
Omaha, Neb	8.45	8.70

### Colorado Anthracite.

### COLORADO FUEL & IRON COMPANY.

Denver	\$8.00
Pueblo	8.00
Colorado Springs	8.00
Leadville	8.00
All points between Denvey and	10.00
Missouri River	8.85

The report of the secretary of the New Orleans Cotton Exchange, on the cotton crop for 1893-94, places the total yield at 7.549 879 bales, an in crosse of 849,452 bales over that of last sesson. The largest part of the gain was in Alabama, Georgia, Florida and North Carollna. Secretary Hester puts the average commercial value of the crop at \$37.50 per bale, sgainst \$42.50 last year and \$37.50 in 1891-92. The total value he places at \$283,118,000, against \$284,150,000 last year, so that while the output of last year was nearly 850,000 bales less its value was \$1,032,000 more than this year's crop.

As illustrating the present excessive freight rates for goods experted to Central and South America a Pittsburgh journal records that a narrow gauge locomotive, bought at that city for \$3575, was recently delivered at Samaca, Colombia, for \$3595, with \$10 904 charges against it. The iron work for four cars, costing \$194 48, reached their destination with a bill of \$1610. A turbine wheel worth \$708 cost when carried within 150 miles of Samaca \$3760.

### CONDITION OF THE

### Hardware Trade.

THE TRADE will note with sati tion the evidence of a general improvement in the demand upon the jobbing trade which is contained in the following reports from the leading Hardware centers. It will be seen that in nearly all cases a decided increase in the volume of business is reported and reference made to the prevalence of a perceptibly better feeling. Business is experiencing relief from the uncertainty which has prevailed during the past months owing to tariff agita-tion, and now that this question is settled, for the present at least, trade is apparently resuming its normal course, and whatever may be the changes in price which will result from the new law, its enactment removes one of the obstacles to business ac-tivity. The effect of this is as yet more marked in some other lines of business than in Hardware, and merchants in such lines report a very decided increase in the demand, many houses being exceedingly busy. It is to be expected that Hardware and related lines will soon feel the influence of the improved general conditions of business, and already there is a decided improvement in the feeling of merchants and manufacturers, as well as in the volume of business. It is to be in the volume of business. expected that as the month advances there will be a further improvement. The smaller trade are replenishing stocks more freely than for some time. and their orders indicate that they are doing a better business and are anticipating a fair, if not heavy, trade dur-ing the next few months. Prices are without important change. While values are, on the whole, as low as they have been at any time during the year, in only a few cases has there been any further shrinkage, and, though low, prices are, on the whole, well maintained.

Advices from Chicago.—The Shelf Hardware jobbers note a very decided increase in the demand for all classes of goods. Some houses have been obliged to work their packing departments at night. Merchants now show more of a disposition to stock up. New ventures are also a little more frequent in the Hardware line and several full stocks have been shipped out recently. Pig tin and solder have been reduced in price to conform with the new rates of duty. Heavy Hardware jobbers report that they have gained fully one-third in volume of business, as compared with the average of the early summer months. General consumers are buying Iron and Steel in larger quantities, and manufacturers with mill contracts are occasionally picking up the material needed to help out.

### Notes on Prices.

Wire Nails.—There continues to be a good demand for Wire Nai's, and the aggregate of business during the past week has been fair. Some of the large buyers have been placing orders, but a good proportion of the business is from comparatively small houses, who are purchasing in moderate lots. Small lots from store in New York are quoted at \$1.25.

Advices from Chicago.—Transactions are very much more numerous and while the volume of business is possibly still below the total production of all the factories in operation, yet inquiries are of such a character that the trade may be expected shortly to take the entire output. Some little irregu-

lari! v been noted has owing to efforts to market job lots of Nails not made by the standard mills, but the trade in general has not been affected and prices are steady. Jobbers quote small lots from stock at \$1.15.

Cut Nails. - A fair business is doing in Cut Nails, the price remaining substantially as at our last report. The stantially as at our last report. store price in New York for small lots is \$1.05 to \$1.10.

Advices from Chicago. -The month of August appears to have been quite a fair month for the local trade. Orders were not large but steady, and business will probably continue running in the same way during the current month. Small lots from stock are quoted at \$1.10 to \$1.15.

Barb Wire .- The Barb Wire market continues without special features, the demand being moderate and prices steady. The market is represented by the following quotations for Four Point Galvanized, delivered at the points named: Pittsburgh, \$2 to \$2 05; Cleveland 20 05 to \$2 10. land, \$2.05 to \$2.10; Cincinnati, Allentown, Chicago, or New York, \$2.20 to \$2.25.

Advices from Chicago.—Mail orders ahow a steady increase on manufacturers' desks. These are generally small, ers' desks. but here and there a country merchant is found with sufficient faith in the fut ure to purchase 50 to 100 tons. Prices show no indication of weakness.

Jobbers report a fair demand from stock. Prices are still quoted at \$2.35 for small lots of Galvanized, with 10 cents off for carloads.

Major's Ice Flout.-This device was described in our last issue as put on the market by A. Major, 232 William street, New York. The Float is sold to the trade at the following net prices:

	Each.
For Coolers 6, 7 and 8 inches in diameter	\$1.00
For Coolers 9 and 10 inches in diam-	
For Coolers 11 and 12 inches in diam-	1.25
eter	1.50
For Coolers 13 and 14 inches in diam-	2.00
Larger sizes are sold at proportion	
higher prices.	-

Glass. -There has not been any change in quotations up to the present time. Plate Glass factories have been in operation for the past three months with a fair demand for their product. It is too soon to decide whether the reduction of duties will have any immediate effect upon prices of Plate Glass in the Eastern markets. Pittsburgh quotations on Window Glass are as follows: Single strength 85 and 5 per cent. discount; double atrength 85 and 10 per cent. discount. Plate Glass is quoted at 70 to 70 and 10 per cent. discount from Eastern list, according to the size of Glass, and from 70 and 5 to 60 and 20 per cent. diacount from Western list, according to size of Glass.

Old Metals.—The demand continues moderate and prices without radical change. The following quotations rep resent about the rates now paid by New York dealers:

TOTA CCALCIA
Heavy Copper 1 1 61/4 €
Light and Tinned Copper
Heavy Brass B 15 41/4
Light Brass # 10 3%
Lead W ID 274
Ten Lead W ID 2/29
Zine
No. 1 Pewter 10 fb 10 f
No. 2 Powter 1 15 6
Wrought Scrap Iron. 8 gross ton \$5.50
Heavy Cast Scrap. # gross ton 7.50
Brove Flage Bellap & Bross von
Burnt Iron 2 gross ton 3.00

Old Rags, Paper, &c. - Business quiet. Dealers' prices, New York de-livery, are as follows:

No. 1 White Rags	Ъ	3	@	31/¢
No. 2 White Rags	Ъ	17%	@	2 ¢
Mixed Rags	Ъ			8/10
Blues and 3ds	Ъ	1	@	134
Hard Sized White Shavings	Ъ	21/	@	$2$ 14 $\phi$
No.1 White Book Snavings #	Ъ	18/	@	21/4
No.2 White Book Shavings 12	D	11/8	@	134€
Light Book Shavings	Ъ			58 6
No. I Mixed Shavings	D	76	a	1 🖸
No. 2 Mixed Shavings #	Tb	6	( @	840
No. 1 Printed Books	В		@	11/4
Ordinary Mixed Books	TD:		0	B/4 ¢
Newspapers	115			2-5¢
No. 1 Manila Paper	L		( @	
No. 2 Manila Paper	Ъ	1 %	0	8/4
Bogus Paper	D)			160
Common Paper	u			1,
Straw Chips	u	-		%
Binders' Clippings	ł D			<b>36</b>
Jute Butts	L	Ь		1%4
No. 1 Jute Bagging	עוּי			1 4
Mixed Bagging	, n	b 3/4	( @	1 4
No. 2 Bagging	A I			3/4
Hemp Twine	A I		٤ ( <u>@</u>	2 4
Manila Rope	ĥ.	b 2	_ @	27/9
Jute Rope	ΆT			1840
Mixed Rope	¥ I	Þÿ	40	369
nee man Distant		****	ahe	oina

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, # b	<b>@</b>	<b>\$0.03</b> ½
Rubber Shoes, carloads, de- livered at factory, # lb	_	.04%
Rubber shoes, less than car- loads, # fb	@	.04
Large Hose, # ton	00	15.00 .03¾
White Syringes, # fb	Õ	.03%

### Trade Notes.

AN INTERESTING ADVERTISEMENT is that of the Star Coupler Company, 801 Wainwright Building, St. Louis, Mo., which directs attention to the Star Water Back and Boiler Couplers. Two Water Back and Boiler Couplers. illustrations show the features of this device and a third cut shows its applica ion to a range boiler connections. A list of local agents is given in the announcement.

THE AMERICAN CAN & STAMPING WORKS, LIMITED, have been incorporated at New Orleans, La. Charles B. Emmerich, George H. Dunbar, F. B. Dunbar, Jules Aldidge and W. T. Seaton are the directors of the com-pany. The company will manufacture cans and do a general stamping business. The capital stock is \$50,000.

THE WOODEN WARE MFG. COMPANY, Midland, Mich., will remove their plant to Fort Smith, Ark.

JENKINS' STANDARD PACKING is the subject of an announcement elsewhere in this issue made by Jenkins Brothers, with houses in New York. Chicago, Philadelphia and Boston. The excellent qualities of this well-known pack-ing are alluded to in the text of the announcement.

C. SIDNEY SHEPARD & Co., Chicago, Ill., issue, under date of September 3, a price list of metals. The list is pubprice list of metals. The list is published in a pamphlet of a dozen pages. Reference is first made to Tin Plates and Terne Plates, then Sheet Iron, Sheet Steel, Galvanized Iron, Yeager's Soldering Salts, Tin, Sheet Zinc, Copper Wire, R vets, Babbitt Metal, &c.

THE AMERICAN STOVE BOARD COM-PANY, 306 Water street, New York, with Chicago office at 110 Ontarlo street, issue a little circular directing attention to their line of wood lined and paper lined Stove Boards. The designs and the principal atyles are illustrated and full lists are given.

Bronson & NEAR, Cleveland, Ohio, and New York, have changed their

address, and are now located at 3 Warren street, New York. Among other goods they are representing the Bread and Cake, Paring and Coring Knives manufactured by Chas. F. Spery & Co., St. Louis, Mo.

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T

CONTENTS.				
Editorials: PAGE.				
Е	inglish Trades Unions and Trades	55		
	Schools	55		
- A	(GHHHHHHH)	55		
T	'he Forest Fires	55		
	e Letter Box—	66		
	Wants Protection from Freezing	56		
- (	lot Air Pipe Damper. Hlustrated	16		
ŀ	Furnace Estimate Blanks	57		
(	Salvanizing Dross	57		
1	Polishing Tinware	57 57		
	Poken Money	58		
Al	uminum and Its Properties	58		
The Tin Shop-				
1	Intersection of Rectangular Pipe with	59		
	Cylinder. Illustrated Groover and Edger. Illustrated	60		
D.	Groover and Edger. Husbane distribution in the state of t			
121	The Central Supply Association	61		
	The Use of Lend Pipes for Conveying			
	Water	61		
	The Sanitary System of Ancient Rome.	61 62		
	Chulking Beneest	63		
	Traps and Vents	63		
11	ardware Curios. Illustrated	64		
	in Plates—			
i	Delay in Tiu Pinte Delivery	65 65		
	A Welsh Tin Plate Worker's View	65		
	Scrapteam and Hot Water-	•		
8	Kennedy Straightway Swinging Cheek			
	Valve. Hiustrated	66	٠	
	Professor Jacob on Ventilation	66		
1	Summer Testing for Winter Heating	66 66		
1	Heating Notes Dipetrated			
	Cold Air Regulator. Illustrated			
1:	The Kenting Pipe Yard, Illustrated	68		
] 1	Eight-Foot Automatic Seit-Opening Rolls, Illustrated	. 68		
1	Smoke Cousumption	. 68	ţ	
1	The Retail Store— Dangler Combination Radiator Heater			
	Illustrated	. 01		
1	Perfection Oil Heater. Illustrated Fishing Tackle	. 0	9	
	The Corn Stove Truck. Hlustrated			
	Columbia Nested Stove Pipe. Illus The Parlor Dome Oil Heater. Illus		0	
	mbe Canton Post Hole Digger. 1110s.			
	Hand Drill No. 5, Illustrated Steel Fire Proof Security Boxes. Illu	s. 7	1	
1	Memoranda	7	1	
	Stove Trade Notea— The Chicago Stove Trade	7	2	
	Duck's Store & Range Company's K	C.	2	
	eeptiou	. (	12	
;	Gran Crahum & Co	4	3	
	The Chicago & Erie Stove Company	7	73	
8	Hooting and Plumbing-New Work at	1a	75	
	Contracts News and Notes	• •	75	
_	mes de Bouert-		70	
,	The Iron Markel	• •	76 76	
0	Chilenge Hanort *** *************************		77	
g d	Condition of the Hardware Indie	• •	77 77	
	Notes on Prices Trade Notes		78	
3-	Metal and Miscellaneous Prices	•••	79	
1	Labor Exchange— Help Wanted		81	
o, ir	Situations Wanted	•••	81	

## THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, September 15, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK.	96-102 Reade Street.
PHILADELP	NIA220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBURG	H Room 509 Hamilton Building.
CHICAGO.	59 Dearborn Street, cor. Randolph.
CINCINNATI	Rooms 22-24 Pickering Building.
ST, LOUIS	
CLEVELAND	

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England,

### Air Velocity.

One of the first matters requiring decision in the design of a heating and ventilating system is that of the permissible velocity of the air through ducts, flues and inlet or outlet open-Of course, much will depend upon the character of the system adopted. At all events, extremely low velocities, while economically the best as regards operating expenses, necessitate flues and ducts of such size as to make their satisfactory introduction exceedingly difficult in a building where large volumes of air are required. With the furnace or ordinary indirect systems, horizontal ducts of any considerable extent are avoided, and therefore consideration of velocity therein becomes less important. But with the blower system, where the means of movement are positive, high velocities are admissible, and notwithstanding the losses by friction, the gain in compactness, the reduction in first cost and the freedom from the inconvenience of large overhead ducts encroaching on head room, are sufficient to warrant the arrangement. Thus velocities running up to 2000 and 2500 feet per minute, reduced to about 1500 feet at the connections to the flues, are very commonly employed. But a sufficiently low velocity through an ontlet register or screen can only be equably secured over its entire surface by maintaining a comparatively slow air movement within the flue. In fact, the very best results can only be obtained by making the area of flue and net area of opening the same. In ordinary practice with the blower system, however, where the flues are of reasonable size the velocity within them will be found to be between 500 and 800 feet in well designed arrangements, while the velocity through openings, figured on net area of register or screen, will average between 300 and 500 feet. Of course this applies to wall outlets above head level. When

the openings are so located as to deliver the air directly against the persons of any occupants of the apartment the velocity must be much reduced; how much must depend upon the arrangement. But certain it is that many schemes of floor admission have failed because of the comparatively high velocity of the air. Unless special provisions are made for deflecting the air currents the velocity through floor openings beneath seats, as in a theater, should not exceed 100 feet per minute and had better be less if success is to be assured.

### Anemometer Measurements.

While the measurement of air volumes and velocities appears extremely simple, there is, nevertheless, opportunity to present apparently correct but very misleading results. Anemometers are not in themselves the most reliable of instruments, and at low velocities, when the reading of the dial is less than the correction to be applied (for almost universally each reading has to be corrected by addition or subtraction of an amount determined by experiments of the makers), it is exceedingly doubtful if even the average anemometer will prove itself reliable. In open air the measurement of velocity is a very simple matter, but great care is necessary when the velocity is to be determined for the air delivered through a small grate opening. Of course any kind of grating must split up the solid volume of air into numerous small iets or streams, which at some unknown distance from the opening again unite, but in a constantly spreading volume. When the flue velocity considerably exceeds that desired through the registers or screen (which can only be regulated by relative areas) there is a strong tendency toward great variations in velocity at different portions of the grating. A continuous reading made by moving the anemometer back and forth across the opening is approximately correct, but is not absolutely reliable. It is therefore necessary that a series of readings should be taken, which can best be done by dividing the area into squares by stretching strings across it and then taking readings at least one minute long at each space. Just how far in front of the grating the anemometer should be held is somewhat difficult to determine, but a distance of 4 inches when the velocity is 300 to 500 feet will give very accurate readings, which, of course, are to be averaged and then multiplied by the gross area of opening to ascertain the volume. Sometimes at one portion of the screen a reverse current will be detected-in fact, the air is so erratie

in its movement that little can be predicted as to the detailed results with any given arrangement. Nevertheless. a general basis may be determined for certain combinations such that rough tests may be made by taking the velocity at some given point of the face of the opening, which corresponds to the average of the readings in previous tests. All anemom-ter tests should be carefully checked if more than moderate accuracy is desired. It will frequently be noted that the action of the wind outside the building is such as to not only change the average velocity, but also to entirely change the readings at various points over an opening, so that where positive readings were previously shown negative results may appear, or vice versa, when the second set of readings is made. It is therefore unsafe to place great dependence upon any report of velocities and volumes unless all the circumstances of the tests are clearly specified.

### Franklin Institute Drawing School.

The drawing school of the Franklin Institute, Philadelphia, opens again for the winter term on Tuesday next, September 18, the term ending on January 10, 1895. On January 15 the spring term of the school will commence, lasting until April 25, 1895, on which day the closing exercises will be held. Each term comprises 15 weeks, instruction being given every Tuesday and Thursday evening, from 7,15 to 9.15 p.m. A full course comprises four terms for full course comprises four terms. for each of which a tuition fee of \$5 is charged. At the end of the course certificates are awarded to such students as have shown the requisite attention, industry and progress. As we have before pointed out, this drawing class, in common with classes of a similar character in New York and other cities, supplies a most valuable means of assistance in their trades and professions to young artisans and others who could not otherwise obtain the thorough knowledge of draftsmanship which can be gained in a course at these schools at a very mod-The Franklin Institute erate cost. Drawing School offers complete instruction based upon the most modern and approved practice in mechanical, architectural and free hand drawing. classes are progressive and are five in number. They include a junior, an intermediate and a senior mechanical class, in which methods, technicalities and styles of drafting and designing engineering work are instilled, com-mencing with the mest elementary work and proceeding to the more complicated machinery drawing. The other two classes are for architectural drawing, in which designs, plans, elevations and details of buildings, &c., are taught, and the free hand class, in which drawing with pen, pencil and crayon from the flat and from casts is treated. Ticketa for these classes can be applied for to William II. Thorne, director, or obtained at the Hall of the Institute, 15 South Seventh street, Philadelphia.

# THE LETTER BOX.

### Making a Finial.

From T. P. F., New York.—I have a finial to make like the accompanying sketch, and I wish some reader of The Metal Worker would enlighten me on the best way to make it.

Note. - The sketch sent by onr correapondent shows a finial 181 inches high, the top consisting of an 8-inch ball resting on a cone shaped base, the sides of which, however, are slightly incurved. We would advise our correspondent that 8-inch balls can be purchased in quantities from ornament makers, and probably it would be much more satistory to buy one than attempt to make it. The conical part of the finial may be made of a single sheet or of several pieces, as desired. If the incurve is only slight galvanized iron will do, but if there is much curvature we would advise the use of copper or zinc. The mctal in any case will have to be stretched with a hammer. After making the cone the approximate shape desired, the stretching, as mentioned, is done by means of a hammer until the exact curvature is reached.

## Weight of Copper for Cornices.

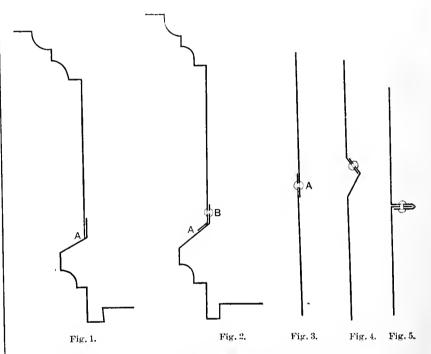
From T. D. J., New York.—Please inform me through The Metal Worker what is the best gauge of copper to use in manufacturing cornices so that they will keep straight and not buckle—16, 18 or 20 ounce copper?

Answer.-A cornice can be made straight and free from buckles using either 16, 18 or 20 ounce copper, provided cold rolled copper is used which is perfectly smooth and flat, and provided, furthermore, that the mechanic has a little experience in working copper cornices. It is natural that a cornice made of 20-ounce copper would be firmer and stronger; but there is no reason why a cornice made of 16-ounce copper, for instauce, should not also be atraight and free from buckles. We know of a cornice now being made, 60 feet long, 8 feet in hight, which will be made of 16-ounce cold rolled copper. As buckles are usually in the large flat surfaces, a few illustrations have been prepared, showing the methods which should be employed to avoid buckles. The usual method is to solder the seam at A in Fig. 1; but the hot soldering iron coming in contact with the copper expands the copper and causes the buckles. The proper way is to bend off from 1 to 4 inch flange, as shown at A in Fig. 2, and then rivet the scam with copper rivets, as shown at B. By bending the flange A in Fig. 2 on the

cornice brake it takes out the waves and no soldering iron comes in contact afterward with the copper. If a large flat surface was required, having two or more sheets in one piece, then, instead of riveting the seam flat, as shown by A in Fig. 3, the seam could be made as shown in either Fig. 4 or Fig. 5, riveting as shown.

As before mentioned, when ordering cornice copper order cold rolled cop-

chamber of furnace, and thus through the pipes and registers, it would appear that the various parts of the furnace are put together in such a manner as to be gas tight. The chimney being plastered inside and out would seemingly preclude the possibility that gas should escape through the walls, and its capacity being nearly twice that of the smoke pipe it would appear that the flue was capable of removing the prod-



Weight of Copper for Cornices.—Methods of Riveting Cornices.

per, perfectly smooth and flat and free from buckles.

## Where Does the Gas Come From?

From W. L. B. & Co., Greenfield, Iowa.—About a year ago we put in a brick set furnace for a party. It has given aplendid satisfaction as far as heating is concerned, but there has been trouble from gas in rooms directly over the furnace. The gas does not come from air chamber of furnace, through hot air pipes and registers. comes out of front of furnace or through the brick flue and plastering, but we are unable to determine which. We cannot detect much gas in the cellar, nor can we locate it in any certain place. The chimney is straight from top to bottom, excepting a jog of perhaps 11 inches at first floor, but the capacity is The chimney not reduced thereby. has a flue 9 x 11 inches, plastered inside and out. Size of smoke pipe leading from furnace to chimney is 8 inches. The question is, is the difficulty in the chimney or in the furnace?

Answer.—As our correspondents state that the gas does not come from the air

ucts of combustion after having once passed through the smoke pipe. As the gas is detected in the rooms directly over the furnace, it may be that the feed door has become warped or does not fit properly, thus allowing gas to escape after fresh fuel has been put on. It is probable the difficulty is owing to the manner in which the furnace is managed. Before opening the feed door the direct damper should be opened; then by slowly opening the feed door the gas is afforded an opportunity to pass up the chimney, providing the smoke pipe is clear of soot or ashes. If the direct damper is allowed to remain closed it is probable that when the feed door is opened much gas will escape, which, being lighter than air, will rise to the ceiling above the furnace and find its way through the openings between registers and frames to the rooms above. This gas is not liable to be detected by those in the cellar, for it is so light that it will remain near the ceiling, but as it slowly finds its way through the openings in the floor it will be noticed in the rooms

### The Tropic Hot Air Heater.

From J. S. S., Pottstown, Pa.-Can you tell me through the columns of your valuable paper where I can get the Tropic hot air heater?

Answer .- We assume that our correspondent refers to the Tropic hot air furnace, which is manufactured by the Carton Furnace Company, Utica, N. Y.

### Automatic Gasoline Soldering fron.

In the accompanying illustration we present a general view of an automatic gasoline soldering iron made by G. W. Clough, Cleveland, Ohio, who has recently applied for a patent on it. The gasoline is contained in the handle of the tool and is forced by air pressure to the burner, which supplies the necessary heat to the hooded copper point at the end of the burner. The handle is of sufficient capacity to contain fuel to last from two and a half to five

plied in a way that completely over- ! comes the difficulties hitherto found in connection with i's use. The nozzles of the burner are cup shaped, and near the bottom of the cup there is formed, internally, a small flauge. Into the nezzle there fits a small cup of wire gauze, which rests upon the flange and bears tightly against the sides of the nozzle. In this way there is a consid erable space obtained between the gauze and the point of ignition, at the top of the nozzle; and in this removal of the gauze from the point of ignition appears to lie the secret of the effective action of the burner—the gauze remains cool, and thus prevents any possibility That the of the tlame striking back. tlame does not approach the gauze is sufficiently proved by the fact that a piece of paper or the head of a match laid in the gauze cup will remain for any length of time untouched.

In a later issue of the same journal is a letter from Thomas Fletcher, the wellknown gas expert, in which he says: "The use of gauze in a fire burner, in such a position that the flame cannot touch it, and that the greater part is also protected from falling dirt, is by no means new. It will be found in a furnace burner for muttles and crucibles, shows that in every hundred families who lived on United States farms in 1890, 47 owned free of incumbrance; 19 owned, but were mortgaged; and 34 blred their homes.

#### An Iron leaf Talk.

#### BY LOSSIL.

"I'll make it hot for you," said the Fire to the Iron.

"Then I shall be down on it," said the Hammer.

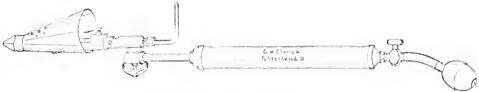
"Strike! but here," said the Anvil.
"I eateh on," said the Tongs.
"It will be colder when I get left," said the Water Tub.

"I'm going to rub my face," said the

File. "When it comes to a pinch, I'm there," said the Vise.

"Well, I'll be blowed," said the Bel-

The perfect taste that distinguishes all the publications of the Gobeille Pattern Company, Cleveland, Ohio, was never more apparent than in the latest circular which they send the trade. It



Automatic Gasoline Soldering Iron.

hours before it is necessary to refill the The tool works under air reservoir. pressure and it is occasionally necessary to pump up a pressure. The manufacturer points out that it will work in or out of doors, and is especially handy for tinners who do outside repair work, as it obviates the necessity of carrying around a fire pot and a number of coppers in order to do a small job. It is also recommended for metal pattern work, and it is stated that patterns can be gated very quickly with its use. By removing the copper the tool can be used by plumbers for thawing frozen water pipe or to keep the lead plastic while making wipe joints. Bicycle repairers, it is said, find it serviceable for cementing and taking off tires. It is also adapted for electrical work and especially useful in armature and commutator soldering. The cost in using the tool is said to be not more than 1 cent per hour. In addition to many of the uses as a soldering iron it is also adapted for use as a paint burner.

### Non-Flring-Back Gas Burners.

At the recent meeting of the Gas Institute, at London, says the Gas World, notice was given by a manufacturer that he was about to introduce an atmospheric burner for gas fires which was absolutely incapable of firing back, and which was practically noiseless in action. This statement created considerable atir in gas circles, and the advent of the new burner has been awaited with something approaching eagerness. The only new thing about the burner is the modified form of nezzle and the gauze cup; the latter being the effective agent in preventing firing back. Readers do not require to be told that the use of gauze for this purpose is not new; but in this burner it has been ap-

invented by myself over 14 years ago, the same burners now being regular standard patterns which are constantly sold. In the year 1886 I designed a modification of this burner for gas fires, and many thousands were made and sold. Notwithstanding the fact that these burners were so satisfactory for laboratory purposes, they developed defects which proved conclusively that the use of gauze in any position, in any fire burner, was a serious mistake, not to be repeated. The burners were absolutely impossible to light back, they were silent, they were efficient; and they were abandoned after 12 months' experience. It may safely be said that for gas fires the use of gauze of any kind in any position is to be unhesitatingly condemned. Although I designed a set of burners over 14 years ago with gauze in a safe position, and although these burners are being made and sold now, and are doing their work with perfect satisfaction, these burners are not used in the position or under the conditions absolutely necessary in gas fires.'

From this it will be seen that it is possible to construct a burner that will not "light back," but gauze will not prevent "lighting back" under all circumstances, and the mere insertion of a piece of wire gauze in troublesome burners will not overcome the trouble.

The American Agriculturist, in an article on "Farm Mortgages," says that the recent scare on this subject is with-The plain out foundation in fact. The plain truth is that only a little more than one fourth of the taxed acres in the country are mortgaged, and probably not one-fifth of the farms are so incumbered. The debt averages only \$8 per acre on all the mortgages, and only \$2.33 on each acre taxed. An official \$2.33 on each acre taxed. An official report on the matter, just published,

is dated Paris, September 1, and is signed by President S. T. Wellman and General Manager Joseph Leon Gobeille. The modern stove is not all that it should be from the point of artistic treatment, and it is a pleasure to learn that the work is being studied by those who are competent to grasp artistic principles and, what is more to the point, translate them into patterns for the foundry. The circular mentions visits to the famous art manufacturers of Europe, where the work itself has been studied and not the catalogue and showroom. We quote as follows from the circular: "In this manner the decoration of the beautiful percelain of Sevres, Delft and Rosenberg; the rich silver work of Hanau, Schoon-hoven and The Hague; the wonderfully effective art furniture of France and Holland, and many other artistic productions have been critically studied We have also paid much attention to the construction of stoves using fluids. gases or electricity as fuel. Many American stoves are exceedingly wasteful of fuel and much too friendly to the gas companies, little attention being paid to economy. But in these older countries 'the factor of negligence,' which cuts so much of a figure in our stove, is looked after closer, and more scientific knowledge and less haphazard is used in the original plans for accompllshing a given result.

Shipments of merchandise to the Southern States show a marked increase, both by land and water.

A report received at the State Department from United States Consul-General Williams, at Havana, shows that since January 1, 1894, the United States has taken 95.66 per cent. of Cuban sugar exports.

# TIN PLATES.

## New Tin Plate Works at Middletown, Ind.

The plant of the Irondale Steel & Iron Company, which was located at Anderson, Ird., was burned to the ground on November 1, 1983. The owners of the plant, about March 1, 1894, began to rebuild at Middletown, Ind., having secured the exclusive right to about 4000 acres of natural gas territory and also having received a very considerable bonus from the citizens of the town. The plant at Anderson was exclusively adapted to the production of light iron and steel sheets for the trade. In the erection of the new mill a complete change was made, and the plant was rebuilt as a modern tin plate mill. As such it is considered to be one of the best equipped and most modern plants in the country. The machinery was put in operation for the first time on August 31, manufacturing black plates for tinning. The mill will run for about 60 days on this product, having its output sold for that time, after which tin plate will be regularly turned

The works are located upon a mill site of cight acres, immediately adjoining the right of way of the P. C. C. & St. Louis or Panhandle Railroad, from which alde tracks have been run into the grounds, so that the handling of material both in and out is accomor material total and out to accom-plished with the least possible labor. The buildings of the plant consist of an iron mill building, 100 x 200 feet, erected by the Pittsburgh Bridge Company, covering the rolling mills, and a brick and iron building, 50 x 200 feet, covering the tin house and pickling room. The hot mills are worthy of special notice, as they are the heaviest mills that have ever been used in tin plate work. The housings weigh 22,000 pounds each, the rolls being 24 inches in diameter with 19 inch necks. The entire equipment of six hot mills and cold rolls, together with doubling shears, finishing shears and roll lathe, was furnished by the Totten & Hogg Steel & Iron Foundry Company of Pittsburgh, their Mr. Freeman being upon the ground during a large part of the construction. They also furnished a 600 horse power Etna engine, which is used in addition to the large engine transferred from the old plant at Anderson. Much credit is given the Totten & Hogg Company for the superior workmanship upon all the machinery they have furnished. The pickling machine is of the Gray pattern, but is a very considerable improvement on the Welsh machine. It was built by the Elwood Iron Works of Elwood, Ind., who also furnished the tinring pots, which are similar in general design to the Thomas & White

At present the company are rolling plates from tin plate bars, but the design of their plant contemplates the addition of a bar mill which they have already on the ground. They will then purchase 4 x 7 steel billets and draw these down to tin plate bars.

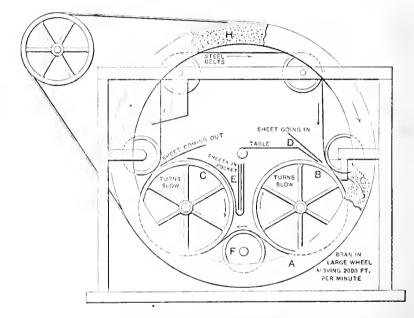
The tinning house contains eight stacks for the manufacture of bright

and terne plate. It is the intention of the company to add two more atacks specially adapted to fine charcoal plates.

The arrangement of the mill is designed to facilitate the handling of material with the least possible labor. The raw material comes in at one end of the mill, is taken to the hot mills and goes on through the mills to the pickler and cold rolls and around through the tinning house to the shipping switch, the whole system being formed in the shape of the letter U. Narrow gauge tracks are laid throughout the works.

The product of these works will be approximately 4000 boxes of 14 x 20 tin plates per week, but for the time being the tin house will not operate to

bran for cleaning purposes. Within this outer drum are other smaller ones carrying a number of steel tapes so as to form a bed to support the tin plates. The outer drum and the inner smaller ones revolve at different speeds, the result being that when the tin plate is carried around the circumference of the smaller drum its surface is thoroughly cleaned by the bran in the periphery of the outer drum. Referring to the illustration the operation of the machine will be clearly understood. Drum A is driven in the direction of the arrows at a speed of 2000 feet per minute and contains the bran, as indicated at H. This drum is driven at a high speed so that the centrifugal force keeps the



Record Tin Plate Cleaning Machine.

its full capacity, and a considerable portion of the product will be sold in the form of black plates.

The company have established their general office in room 1023 The Rookery, Chicago. This will be the head-quarters of Harold O. Crane, accretary and treasurer. The other officers of the company are as follows: George A. Laughlin, president, and John F. Whitelaw, vice president, both of Cleveland, Ohio, and L. B. Jackson, works manager at Middletown, Ind.

## Record Tin Plate Cleaning Machine.

A patent recently granted to Geo. J. Record, Conneaut, Ohio, describes a tin plate cleaning and polishing machine now in successful use by the Record Mfg. Company of that place. The essential features of the apparatus are shown in the accompanying engraving, which is a sketch of a side view of the machine with parts broken away, revealing the interior construction and the general method of its operation. The primary idea of the machine is to drive a large drum at high speed, in the periphery of which is a quantity of

bran at the outside circumference and evenly distributed. Suitable mechanism is provided for rotating the drums B and C in the direction of the arrows, which, it will be noticed, is in the same direction as the drum itself; the speed, however, of the smaller drums is comparatively alow. Between the two smaller drums is a third one, F, while at the top are two others, around which the ateel belts pass. These belts are placed about 1½ inches apart and pass over the drums diagonally, so that the portion of the plate covered by them continually about a surface in them. changes and the whole surface is thus brought into contact with the bran. The plate is introduced at D, passes around the drum B, over the smaller drum F, then around the drum C, and is finally delivered into the pocket E, the operation, it will be understood, thoroughly cleaning one side of it. From oughly cleaning one side of it. From this pocket it is taken by hand, turned over and again inserted at D, the other side being cleaned in the same manner. The manufacturers think that the machine is capable of cleaning 75 boxes of 14 x 20 plates per day by one operator. After passing through this machine the plates are put into a dusting machine,

which finishes them with a very bright surface. The cleaner, a view of which is shown in the engraving, is adapted to plates of all sizes. Another feature of this machine which has an important bearing on its practical operation is the attachment G, which is a bent piece of metal that acts as a plow and continually stirs up the bran, so that it is kept in proper condition for absorbing the grease from the plates until it is all thoroughly saturated. When that happens the drum is cleaned out and fresh bran inserted. The machine has been designed with great ingenuity, the above description only telling of its general operation and important features.

#### SCRAP.

THE ENGLISH humorous papers are generally accounted pretty dry reading, but no one can assert that there is dullness in the British press when its columns are lighted up with such amusing passages as this, which we clip from the South Wales Argus, published in Newport: "It has been scientifically demonstrated," says the Argue, "over and over again, that the climatic and geological conditions of Wales render it difficult, if not impossible, for our American cousins to compete with us in the manufacture of plates." What climate has to do in facilitating tin plate manufacture is difficult to understand, that is, unless the climate is very dry. But, on the contrary, the Welsh weather is notoriously wet and offers every inducement for black sheets to rust and finished plates to tarnish. Geologically the case is no better. Wales is a good place to make iron, but so are a dozen places in America, and until they find rich tin deposits in the Swanses district and gather palm oil from the native groves, the Welshmen had better be content to compete on even terms with the Americans. The same folly of favoring climatic and other conditions was talked about years ago in support of Sheffield made steel, and one would have thought that the ridiculousness of that claim, as proved by the growth of the American steel industry, would have prevented its being used over again in favor of tin plates.

THE TIN PLATE TRADE in the Monmouthshire valleys is reported, by the London Iron and Steel Trades Journal, to be very bad. Of the 78 mills erected there, only 34 are in operation and about 2600 tin plate workers are still unemployed, meaning a loss in wages to the district of about \$18,500 s week.

Under recent date the Phillips Tin Plate Company send out a circular to the trade announcing that they are running full time on their specialties in tin and terne plates of all grades, and will run day and night from October 1. They allude to the uniform excellencies and the heavy coating on their plates.

Dealing with the new United States tariff and its effect on the Welsh tin plate trade, the Birmingham Post, one of the leading British dailies, expresses itself candidly as follows: "Last year our shipments of this article were a little over 255,000 tons, as compared with 325,000 tons in 1891 and 336,000 tons in 1889. Something more than tariff influences are required to explain the substantial drop between 1891 and 1893, and it is probably to be found in the gradual development of the American manufacture of tin plates. During the first year or two after the McKinley tariff came into operation the domestic

manufacture of tin and terne plates in the United States was evidently passing through a probationary period; but we learn from a recent official return that during the first quarter of the current year it attained the goodly total of over 38,000,000 pounds, of which cent. was made from sheets rolled in the United States. These figures are equivalent to an annual production of 1.500,000 boxes of 100 pounds each, which represents roughtly about onefourth of the American consumption during 1893. The reduced duty may check for a time the expansion of this thriving branch of American industry, but it is hardly sufficient to destroy it. and our tin plate manufacturers will have cause to be thankful if they cau recover any portion of the ground they have lost in the last few years."

THE HENDERSON TIN PLATE COMPANY is the name of a new concern who have commenced the manufacture of tin plates at Norristown, Pa., occupying an abandoned shoddy mill, which they have adapted to their purpose. The works were started this week with 30 hands on extra heavy coated apangled terries.

THE PENNSYLVANIA STEEL COMPANY, Steelton, Pa., are erecting the new tin plate works for the Lalance & Grosjean Mfg. Company, at Harrisburg, Pa. The building is 60 x 160 feet.

The Cleveland Leader states that the Britton Rolling Mill Company of that city will start their tin plate plant very shortly. The concern were organized to manufacture tin plates, among other things, and the firm believe that the time has now arrived, with a settled tariff, to commence the industry.

F. R. Phillips of the Phillips Tin Plate Company, Philadelphia, reports a better demand for tin plate machinery, he having contracted last week for an entire new plant, and expected to close for two more this week. Every facility, we understand, is offered to see the machinery running on the finest grades of plates with different weights of coating. The plates made by this concern are, we understand, used extensively in Philadelphia, Boston and New York.

THE TOTAL EXPORTS of tin and terne plates from Great Britain last month, according to the Board of Trade returns, were 26,000 tons, against 25,000 tons in August, 1893 Of this amount, shipments to the United States were 19,000 tons, against 15,000 tons in the corresponding month of last year, which was one of exemplary dullness.

THE PROJECTED TIN PLATE WORKS of the Emlyn Steel & Tin Plate Company, at Summitville, Ind., have not been built. The buildings and machinery were ordered, but an obstacle was encountered in making the financial arrangements before the buildings were erected, and the makers of the machinery sold it to other parties. The incorporation of the Madison Tin Plate Company of Chicago by some of the projectors of the Emlyn Company would seem to indicate that the latter had been abandoned

The Elliwood Tin Plate Company, Ellwood City, Pa., manufacturers of tin and terne plate, have recently let a contract for a new tinning house, which will measure 50 x 100 feet in size and contain ten tinning stacks. In addition to this building the firm will put up an assorting room and pickling room in two separate buildings of about 30 x 40 feet in size. The firm have

placed orders for two Morewood tinning sets with the Lloyd Booth Company of Youngstown, Ohio, and two Thomas & White sets with the Union Foundry & Machine Company of Pittsburgh, with which four machines it is their intention to make a start coating their product of black sheets, while they will gradually equip their tinning house to its full capacity as soon as conditions warrant this step being taken.

AT A CONFERENCE held in Pittsburgh on Thursday, the 6th inst., between the Executive Committee of the Tinned Plate Manufacturers' Association of the United States and a Conference Committee from the Amalgamated Associa-tion of Iron and Steel Workers, a proposition was received from the manufacturers, in which a request was made for an average reduction in wages in tin house labor and in sheet mills making sheets for tinning purposes of 25 per cent. A long discussion was had, lasting six or seven hours, and this proposition was finally submitted to M. M. Garland, president of the above organization. Mr. Garland will send the proposition to the different lodges in the Amslgamated Association that are affected, and a vote will be taken as to whether to accept it or reject it. It is expected to hear from all the lodges on the matter not later than the 20th inst., after which date another conference will be held with the manufacturers as soon as it can be arranged. It is the general impression that the employees will refuse to accept the proposed 13duction.

RAPID PROGRESA is being made with the building of the Morton Tin Plate Company's plant, at Cambridge, Ohio. Ground was broken August 20, and the foundations are completed for three hot mills, three cold rolling mills, and all foundations are built for boilers, picklers, shears and other machinery. A bed of fine sand stone, 12 feet in thickness, was found on the property shortly after its purchase by the new company, and has been largely used in the foundatious. It is expected that the rolling mills will be in operation by December 15. Steps will then be taken toward the crection of the tinning departments.

THE BLACK DIAMOND TIN PLATE WORKS, Philadelphia, are reported to be running along in good shape and turning out a satisfactory product. Temple & Lockwood, 12 Platt atreet, New York, agents for the works, find a very good market for the Black Diamond high grade roofing plates in this and neighboring districts, where the good qualities of these home made plates are becoming recognized.

Canadian trade returns for the month of July show a considerable falling off as compared with the figures for July of last year. The value of exports was \$11,451,527, as compared with \$12,683,597, while imports declined from \$10,692,637 in July, 1893, to \$10,058,226 in July of this year. The duty collected exhibits a decrease of over \$250,000.

The statistics of the Financial Chronicle place the American cotton crop of 1893-94 at 7,527,211 bales, an increase of 810,089 bales over that of the previous year. Compared with the average of the seven previous crops, last season's yield shows an increase of 72,910 bales. The new crop will, it is estimated, exceed this good showing by quite 1,500,000 bales.

## STEAM AND HOT WATER.

# Heating Philadelphia County Prison.

The plans and specifications for the erection of a prison for Philadelphia County, at Holmesburg Junction, Pa., were drawn in 1887 by Wilson Brothers & Co., engineers, architects and consulting engineers, Drexel Building, Philadelphia, and were accepted. The preparation of the grounds and the erection of the foundation and the comple-tion of the building up to a point where the heating plant would be required occupied the time of the con-tractors until last fall. The original plans and specifications for the heating and ventilating plant were drawn by Cuarles G. Darrach of the above firm, and its installation during the past year under his supervision required changes to make it a model heating plant, except in such minor details as are usually found necessary in the installation of any large work. The contract for the heating plant was awarded to the Edge Moor Iron Company of Wilmington, Del, who sublet a portion of the work to Clarkson, Scott & Co., engineers and contractors, 118 Custem House place, Philadelphia, Pa.

Fig. 1 shows a general plan of the grounds and buildings. A wall 4 feet thick and 32 feet high surrounds the grounds, which have a frontage of about 900 feet and are over 800 feet deep. The walls are built with rounded corners on the inside to prevent the possibility of escape by the prisoners climbing up the corners by wedging themselves in the angle. At the front of the grounds the wall in the middle is carried back in a curve sufficiently to permit the administration building to stand outside the wall on the grounds proper and yet back of a line of the front wall, as shown in the plan, Fig. 1. At the center of the curve, behind the administration building, is the guard house, and in the northern corner of the grounds is the hospital. The prison proper consists at present of six wards, radiating from a central rotunda, the plan of the prison being such as to permit the erection of four additional wards, should they be necessary. In-stead of a ward leading from the rotunds to the back of the grounds there is a corridor which leads to the supply building. The rotunda is 80 feet in diameter and 45 feet in hight. The corridors leading down the wards between the cells intersect the circle of the rotunda, so that a sentry standing in the center of the rotunda may see to the extreme end of each ward. The prison at present has 440 cells, each one provided with a separate heating flue and exhaust ventilating duct, and each ward has a ventilating shaft midway of the ward, into which all of the ventilating ducts connect. These venti-lating shafts are 5 feet in dismeter and 50 feet in hight, with an interior circular shaft  $\xi_{\frac{1}{2}}$  inches thick, built of brick, which is inclosed in a shaft  $\xi_{\frac{1}{2}}$ feet equare, the walls of which are 12½ inches thick at the bottom and 8½ inches at the top. The steam for the heating plant and power for all of the buildings is furnished by three Galloway boilers, located in the southern corner of the supply building. Each of the boilers has a capacity of about 200 horse power, and they were installed under a guarantee to evaporate 104 pounds of water from a temperature of 212° for each pound of combustible, and at the test, when the heating plant was accepted, they showed a very substantial excess of evaporating power over this requirement.

Fig. 2 is a plan of the boiler room with the boilers at the left, with the piping, water supply, feed water heater,

of them for the engine, dynamo or for heating. An 8 inch steam main runs from the dome of each of the boilers into a tee, from which an 8-inch pipe with an intercepting valve connects with a high pressure main, and from the other side of the tee a pipe runs with an intercepting valve connecting with the 12 inch low pressure main, as shown in the illustration, Fig. 2. Fittings are placed on both of these mains for connecting two additional boilers of the same type when the additional prison wards are built. At the opposite side of the boiler room great care has been

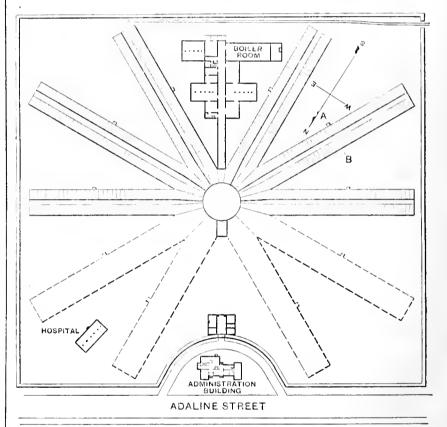


Fig. 1.-Plan of Grounds and Buildings.

### HEATING PHILADELPHIA COUNTY PRISON.

hot well to receive the return condensation from the heating system and the pumps at the right. Fig. 3 is an eleva tion showing the boilers, pumps, &c. The boilers are so set that after the products of combustion leave them pass down under and along the bottom of the boilers to the outlet immediately under the front, which is controlled by a damper leading into a horizontal flue 4 feet 6 inches wide and 4 feet 6 inches high, with an arched top. This flue leads horizontally to the main smoke stack, which is 150 feet in hight. A Blake hydraulic regulator is used in connection with a damper placed in this horizontal flue before it connects with the vertical flue, and regulates the draft according to the pressure carried on the boilers, and the amount of work required

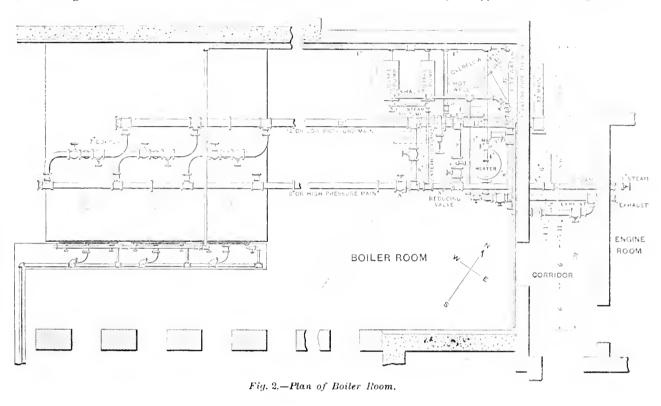
taken in connecting these two mains, and valves have been so placed that either may be used for the entire system, the valves used being those of the Fairbanka Company. The pressure main continues across the corridor to the engine room to supply the engine and dynamo and the pipe is arranged to utilize the exhaust.

The water supply is so arranged that the boilers may be supplied by city pressure when necessary, or water may be pumped direct from the hot well to the boiler, or may be forced through the water heater. By a system of bypasses the water in the water heater may be heated by exhaust steam, or from either the high or low pressure mains. A 6-inch vapor pipe runs from the hot well to the roof and a pipe runs

from the hot well to a blow off well just outside of the building at the south corner. A blow off pipe from the boilers runs to the same well. A reducing valve is placed in the connection between the pressure and heating mains to regulate the pressure, when for any reason the high pressure main is used for heating. The 12-inch heating main makea a right angled turn outside the boiler room well. A 6-inch branch is taken from the pressure main, after passing through the wall, and carried along the corridor which leads

connecting into a 10 inch circular main. The circular main is a very fine piece of pipe fitting, being constructed by the aid of special flanges. The pressure main terminates in an octagon of 5-inch pipe, which extends around the rotunda cellar. A 3 inch branch is taken from the pressure main and runs over to the hospital building. A accond 3-inch branch is taken from the pressure main and runs to the guardhouse, and is extended to the administration building outside the prison wall. Both of these pipea were laid on the Holly system,

for heating was done by Clarkson, Scott & Co. The rotunda is heated by Bundy Princess radiators located on the floor, and the entrance hall and the library above are heated in the same way, all of these radiators being connected with the 10 inch heating main. There are about 900 square feet of radiation of the Bundy Princess pattern used in heating the rotunda. From the 10-inch heating ring at the rotunda a 4 inch heating main is carried down each side of the corridora for heating the cella to a point opposite the ventilating shaft at



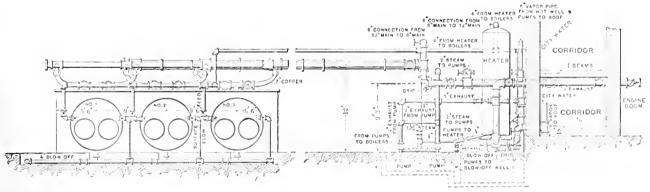


Fig. 3.—Sectional Elevation of Boiler Room.

### HEATING PHILADELPHIA COUNTY PRISON.

to the rotunda, a distance of about 300 feet, expansion joints being placed in the mains to provide for the expansion and contraction of the pipe. A novel hanger has been constructed for supporting the pipe. It consists of two bars attached to the girders of the arch of the corridor to form a support for two pieces of 1-inch round iron, on which rest two bearing bars to which are connected the straps which pass around and support the pipe. By this means the hangers rest on rollers and any movement due to expansion or contraction is free.

Both the heating and pressure mains terminate in a circle under the rotunds, as shown in Fig. 4, the 12-inch main

which has been found very satisfactory in this case. Where the 12 inch heating main connects with the 10-inch circle a valve is placed on each side, and from the bottom of the connection a drip pipe is taken to a McDaniel trap. Around the base of the cellar in which the heating mains are located a 4-inch return pipe is run and from each end the pipe is continued full size back to the hot well in the boiler room. A drip pipe is taken from the pressure octagon on each side of the main connection to it, both of which run into a McDaniel trap which is placed on the 4 inch return. The piping, up to this point, was done by the Edge Moor Iron Company, and all of the other piping in the building

the line A.B., on Fig. 1, a distance of about 150 feet. Here the heating mala branches into two 3-inch heating mains, one of which extends to the extreme end of the ward, and the other extends back toward the rotunda till it re ches the warden's office, which is just inside of the corridor. Expansion jointa arc placed in the 4-inch main a few feet inside of the ward, and on the 3 inch mains midway between the end and where they councet with the 4 inch main. A 14-inch pressure main is taken from the pressure ring in the rotunda, extending to the ventilating shaft shown at A B on Fig. I, and connecting with 400 square feet of Bundy extended loop radiation placed in the ventilation shaft to create an upward air current. A  $2\frac{1}{2}$  inch return main runs from the extreme end of the ward back to a McDaniel trap located just inside of the ward, which, in turn, is connected by  $2\frac{1}{2}$  inch pipe with the 4 inch return main inside of the rotunda. A McDaniel trap is placed where the return from the ventilating shaft enters the corridor, and in turn is connected with the  $2\frac{1}{2}$  inch return main.

from out of doors by means of a register placed in the outer wall connecting with a 10-inch cast iron plpe, which in turn connects with a 10-inch terra cotta pipe which leads to a point just below the radiator, at which point is fixed a damper for controlling the air supply. At the bottom of the cell a register is placed which connects with a foul air shaft,

are lighted by means of a skylight set in a cast iron frame, the opening being 5 inches wide and 4 feet long. From a central point the frame work flares so that the base of the cast iron frame at the top of the ceiling is 2 teet wide, while at the top, above the roof, the glass is 18 inches wide. The glass sets in a hinged frame with a lever extending down into the cell, so that the prisoner

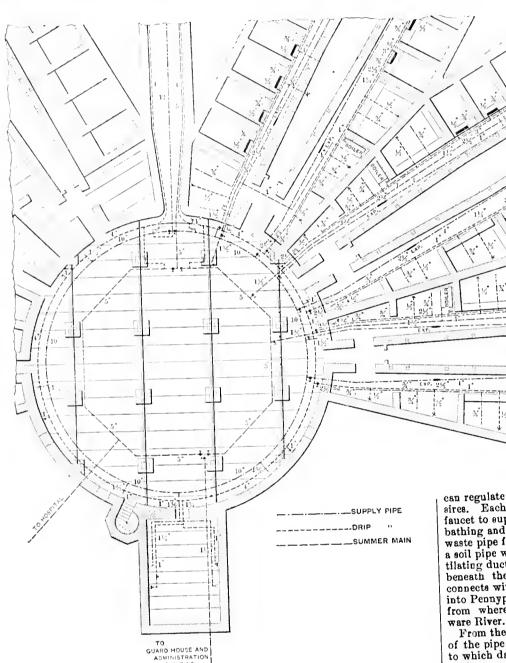


Fig. 4.—Showing Piping Under Rotunda and Wards.

### HEATING PHILADELPHIA COUNTY PRISON.

A cross section of the corridors and cells at the line A B, on Fig. 1, is shown in Fig. 5. In the basement a central air tight duet extends the entire length of each ward under the corridor with passageways on each side. In the passageways are located the heating and pressure mains and returns previously described. Beneath each cell is located 50 square feet of Standard indirect radiation, inclosed in a galvanized sheet iron box, with an 8 x 8 inch warm air flue leading to a flue of the same size, which discharges warm air into the cell near the celling. The indirect radiation is supplied with air

which leads to the ventilating duct beneath the main corridor. The end of the duct which opens into the corridor is provided with a sliding damper for regulating the amount of ventilation. Midwey of the ventilating duct at the line A B, on Fig. 1, an iron grating, 5 x 8 feet, is placed in the floor to connect with the duct, which is 5 feet high by 7 feet wide, leading to the ventilating shalt, and which is controlled by a damper.

Automatic air valves are used on the radiators throughout the entire plant, and all of the piping is covered with magnesia sectional covering. The cells

can regulate the supply of air as he desires. Each cell is provided with a faucet to supply water for drinking and bathing and a hopper water closet. The waste pipe from these fixtures leads to a soil pipe which runs through the ventilating duct to a sewage well located beneath the rotunda, which, in turn, connects with a sewer which discharges into Pennypack Creek, a short distance from where it empties into the Dela-

From the fact that the greater portion of the pipe work was done in corridors to which daylight cannot enter, the use of lamps and lanterns was necessary throughout the entire installation, which naturally made the work expensive. The heating plant was installed under a guarantee that it should be satisfactory to the architects and engineers, which was considered more satisfactory to all concerned than a guarantee to maintain a temperature of 70° in zero weather and the withholding of a portion of the money until the weather was such as to permit the fulfillment of the conditions. In making the test the average velocity of the air entering the hot air registers was 270 feet per minute and the temperature about 140°, which changed the air in the cell about four times per hour, and no difficulty was experienced in maintaining a temperature considerably above 70 after the plant had been in operation some time.

When the boilers were first fired and the plant put in operation, no material rise in the temperature was noticed for several days, due to the fact that so much solid mesonry had to be heated and dried, which absorbed a great deal of heat. The outside walls were 21 inches thick, the walls between the cell and the corridor being of the same thickness, while the walls between the cells were 17 inches thick, and the thinnest part of the arch forming the roof of the cell was made of bricks and concrete work, 12 inches thick. The

ber 1. They will be pleased to receive catalogues and quotations from the trade in general.

#### A New "American" Radiator.

The American Radiator Company have just added a new radiator to their already very large assortment, which they will call the Detroit Fine Renaissance. An illustration is herewith given, and is a handsome specimen of the high

illustrations will be promptly mailed to all steam fitters addressing the American Radiator Company, 111 and 113 Lake street, Chicago.

#### HEATING NOTES.

THE CARD AMENDAR for the month of September in the series that is being sent out by M. Mahony, Troy, N. Y., is suggestive of the season in that it represents a sportsman with his dog

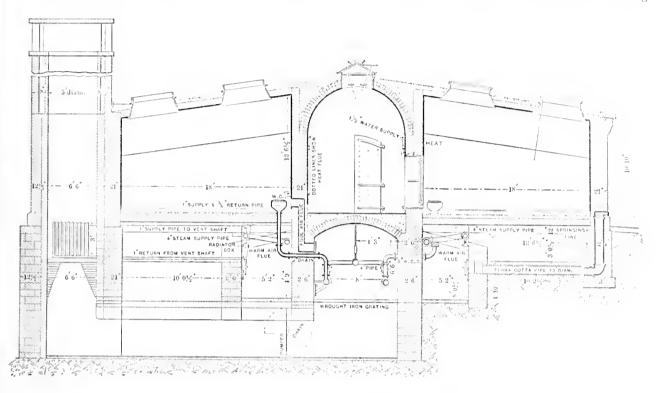


Fig. 5.—Showing Cross Section at Line A B on Fig. 1.

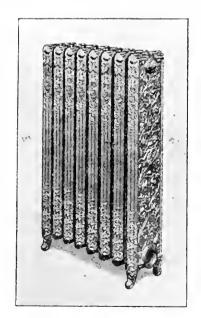
#### HEATING PHILADELPHIA COUNTY PRISON.

floor of the cells was 12 inches thick at the thinnest part of the arch which supported them. At points where the arches intersect, in some cases, the masonry was as much as  $3\frac{1}{2}$  feet thick. After this mass of masonry had onee been dried out, a fall of from  $30^\circ$  to  $50^\circ$  in the outside temperature was not felt in the cells for several hours, or even a whole day. The test made was in every way satisfactory, both to Wilson Brothers & Co. and to the authorities, as well as to the heating contractors, the Edge Moor Iron Company, and the aubcontractors, Clarkson, Scott & Co.

The hospital on the grounds is heated by an indirect system, and has, a very efficient exhaust system in connection with a large ventilating shaft, similar to that described in the prison plant. The guardhouse and administration building are heated by a combination of the direct and indirect systems.

C. D. Moore has resigned his position as secretary of the Westfield Heating & Plumbing Company, Westfield, Mass., and formed a partnership with A. N. Sprague, who has been connected for many years with H. O. Sprague & Sons. The new firm will be known as Sprague & Moore, and will carry a large line of hardware, paints, oils, ranges, &c. They will also do heating, plumbing and general jobbing. They have leased the old stand of G. B. Gaylor, 49 Elm street, Westfield, Mass., and expect to be ready for business by Octo-

grade work for which this company are famous. The Detroit Flue Renaissance is 38 inches high, and each loop con-



A New " American" Radiator.

tains 7 square feet of all-cored prime heating surface. The width is 8½ inches, and when estimating the length each section occupies 3 inches. Handsome

going through the fields. Modest reference is made to the Mahony boiler.

Nealon & Farnon, Paterson, N. J., were awarded a contract for heating the new municipal buildings in that city, their contract price being \$9541. The same firm were also awarded the lighting contract for \$5136.

Roswell Kay and John W. Peck have succeeded to the ateam and hot water heating business of J. W. Peck and the stove, tinware and metal working business of D. Dewey & Son, Montpeller, Vt., and will occupy the entire building at 60 Main street. The stove and furnace work of the new firm will continue under the supervision of F. D. Dewey.

HERENDEEN MFG. COMPANY, Geneva, N. Y., are sending out illustrated circulars relating to the Furman Junior hot water and steam boilers of their manufacture. The goods are thoroughly illustrated by means of half-tone engravings, descriptive particulars are given, and tables of dimensions and price-list.

The A. A. Griffing Iron Company are distributing from their branch office at 34 Dearborn street, Chicago, a very fine catalogue of the Bundy radiator.

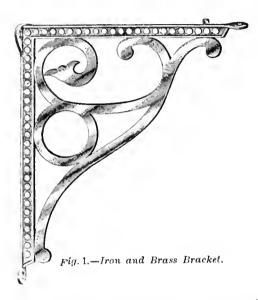
British Board of Trade returns for August show that the imports decreased \$18,128,000 and the exports decreased \$4,360,000, as compared with those of August, 1893.

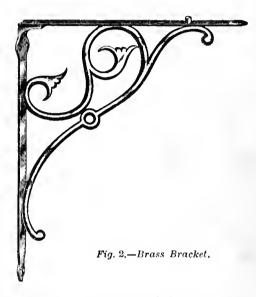
# PLUMBING and GAS FITTING.

Union County, N. J., Master Plumbers.

The master plumbers of Union bunty, N. J., including Elizabeth. County, Plainfield, Cranford, Summit, Rahway and Roselle, met at the Young Men'a Association Hall, Elizabeth, on the Iron brackets are furnished in japan, hardware bronze polished and nlckel plated, and the brass brackets are polished, also nickel plated. The design illustrated in Fig. 2 is made in the same sizes, of brass only, and is furnished both pollshed and nickel plated. The brackets are designed for use in

continuously or at intervals without the labor of turning the gas up or down or the annoyance of finding the water at an undesirable temperature. The boiler illustrated is intended to stand on the counter inside the urn, and is connected with the water supply and with the gas. The regulator is adjustable and may be





evening of September 5, in response to the call of National State Vice President of New Jersey John Hickman.

The meeting was called to order by Mr. Hickman, who, after stating the objects of the meeting and very forcibly pointing out the needs of organization, introduced National President John Mitchell. Mr. Mitchell, in his usual careful and deliberate way, impressed the master plumbers present that it was to their interest to form an association for trade protection and more friendly feeling among members of the craft. Wm. J. McDermott of New York was introduced and concurred in all that had been said, and in addition went over the work of several well-known associations which are receiving such excellent protection, and explained how the master plumbers of Union County might receive similar benefita.

The association was organized with 14 charter members, and the following officers elected:

President, Jno. H. Carney, Plainfield.

Vice president, Jos. L. Whelan, Elizabeth.

Treasurer, A. B. Winans, Elizabeth. Secretary, Wm. H. Addla, Plainfield. Strenuous efforts will be made, and it is believed with auccess, to enroll every master plumber in the county. Mr. Hickman is a very earnest and succesaful worker.

#### Brackets for Plumbers.

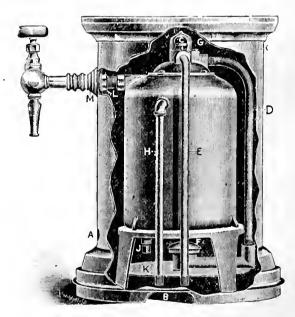
Ette & Henger Mfg. Company, St. Louis, Mo., have recently added new designs to their line of brackets for plumbers' work, as shown in the accom-panying cuts. The bracket shown in panying cuts. The bracket shown in Fig. 1 is made in iron and brass, in sizes 5 x 7, 7 x 9 and 16 x 18 inches.

connection with marble slabs, sinks, closet tanks, &c. The two smaller sizes of both iron and brass are packed half a dozen in a paper box, while the 16 x 18 inch sizes are put up one dozen in a wooden case.

#### Rowe's Automatic Hot Soda Apparatus.

We show in the accompanying illustration a broken view of an automatic

set for the delivery of water at any temperature. The attendant merely has to draw the water as desired, the whole operation being automatic. While the water is being drawn the apparatus turns up the gas and as the water heats gradually turns it down to the lowest burning point, at which it remaina until more water is drawn. Referring to the illustration, in which the parts are lettered, F is the gas burner supplied by the pipe D, G being the



Rowe's Automatic Hot Soda Apparatus

hot sods apparatus manufactured by L. L. Rowe, 18 Howard atreet, Boston, Mass. The purpose of this apparatus is to furnish water at a given temperature is lighted through the opening A. The

adjuster for the gas supply, which enters through E; C being another adjuster to regulate the heat. The burner

boiler, finished in niekel plate or silver, is tinned inside and tested to 300 pounds pressure. The boiler is also made in sheet iron easing for barbers' use.

#### Gas and Gas Fitting.— VIII.\*

BY J. W. HIGHES.

#### Putting Up Fixtures.

When the building is nearing completion the gas fitter will be called up to attend to the hanging of the gasaliers, putting up brackets and connecting gas stoves and fires. Should it devolve upon him to assist in the selection of the fixtures he must be guided by the requirements of the case, not only as regards the lighting, but also the suitableness of the different fixtures, forming as they will very prominent parts of the furniture and decorations of the

apartments.

In large centers such work is usually attended to by the architect, decorator or cabinet maker, but in small towns the average customer will appeal to his gas fitter for assistance. It will be impossible to lay down definite rules for guldance in such eases, but certain general principles must be kept in mind. Small rooms, such as up-stairs sitting rooms or boudoirs, will require lighter fixtures than the larger rooms, such as parlors and dining rooms. The fittings must also be somewhat in keeping with the general style of the house finish and decoration, both as regards color and style. It by no means follows because only one light is required in a room that a single light gasalier must be selected. A two, three or four light lamp in many cases will be much more suitable as being more symmetrical and appropriate to its general surroundings. Should a fixture be required for the newel post of the stair it must be in keeping with the general style of the post of which it will form a part. Swinging brackets must never be selected to go on wooden partitions or be chosen for places where they are liable to be swung under shelves or against doors or other wood work. For closets and similar places an ell cock, screwed onto the nipple, will generally be found to fill the bill, &c.

The length of gasaliers is an impor-tant matter. Hights of ceilings must be taken, measuring from the bottom of the center to the floor, it being usual to hang gasaliers in ordinary apartments 6 feet 4 inches clear of the floor. For halls 6 feet 6 inches is a general hight, for mirror lights 6 feet 2 inches and in stores fixtures generally hang 6 feet 6 inches to 7 feet clear of the floor. Some judgment must be used in even so simple a matter as this. In rooms where people are going to dance 6 feet 4 inches would not be sufficient, as a tall man might in dancing strike them. Fittings that have to supply light for reading, sewing and similar occupations require to be lower and nearer the work than if required for occupations

requiring less light.

The gas fixtures having been selected and made to length it is the fitter's duty to see that they are tight. This is done with sufficient exactness for small fixtures by exhausting the air by means of the lungs, and if the tongue adheres firmly to the fixture after the air has been sucked out the fixture may

be accepted as tight. But it is not sufficient to merely feel that the tongue adheres, a short interval of time must be allowed to elapse before the tongue is removed; as, for a very small leak, adherence will take place at the moment, but the entrance of air by the leak will speedily release the talking organ. Having made sure the fixture is tight next make certain there is no stoppage in it. The simplest way of doing this is by blowing through it, not with all the cocks open, if it is a tixture of several buruers, but shutting off all but one, then shutting the one tested and opening another until all have been tried.

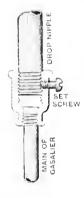
Gas fixtures should be put together with gas fitters' eement, which is a sort of rough sealing wax, made as follows: Take 4½ parts of good clear rosin, 1 part beeswax, 3 parts venetian red. Melt and thoroughly mix. Then run into sticks on a marble slab or piece of lron or any similar substance, to which it will not adhere when cold. It is applied by thoroughly warming the parts on which it is to be used to such a temperature as will cause the cement to flow freely. Then apply by rubbing an end of one of the sticks to the heated parts and screw up while hot. The spirit lamp and blow pipe are generally used for heating. It was at one time customary to use gas fitters' cement in putting together the pipes in a build ing, and it may still be the custom in some places. The objection to it was the time it took, the greater eare required and the brittleness of the joint after being made. Heavy swinging brackets that are liable to turn down if swung to the right side for unscrewing are best put onto the nipples with cement, or, better still, a back plate can be used, which will be screwed to the wall by ordinary wood screws, and the bracket screwed to the plate by a pinching or set screw.

Having made sure that the fitting is both tight and clear, next put on the burners or jets. Sec that they are set straight, and if the burner is to serve as a fastening to the globe holder or gallery, see that the thread on the fixture is long enough to allow the burner to be well and safely screwed on. This is another place where great care must be used to prevent an escape of gas, and cement does not answer the purpose, as the burners will, in most cases, get hot enough to melt the cement. Good red or white lead, so mixed that it will not run, is best for use at such joints. Specially made washers can also be had which serve the purpose admirably, being set at the base of the burner. When an escape of gas is complained of after the gas is lighted, it will be found in many cases to come from the joint at the base of the burner, sometimes in sufficient quantity to smell badly, but in too small a quantity to light. The fitter must not suppose because he cannot get a flame at a joint that it is perfectly gas tight, as a keen nose will find an escape sufficient to cause a very unpleasant odor in a room, when the gas is not escaping enough to light on the application of a flame. Set the jets in the burner so that the flat part of the flame will be toward the direction in which it is desired the light shall travel.

The burners being on you are now ready to haug the fixture, as it is called—that is, to acrew it to the drop. The drop must be cut to a proper length in order to have a neat joint at the ceiling, properly covered by the ceiling piece, leaf or cap forming the top of the fixture. Screw up the fixture

tirmly, and caution the people of the house against twisting it for a few days until the red lead has become properly set, unless cement has been used, which will make a rigid joint as soon as cold. Very large fixtures should further be made safe by having a set screw run through the top socket, which must be set tightly against the pipe, as shown in Fig. 26.

Having screwed up the fixture, see that it hangs straight (plumb), and don't leave it until it does, See that the arms are parallel with the body, or rather stem, of the fixture; that the globe holders are set level, and that the ornaments generally are in proper position and have not been disturbed by the hanging up operations. In putting up large fixtures it is sometimes of advantage to strip them of a portion of their ornaments, such as chains and pendants, and trim the fixture after the stems and arms Having the fixture in position, are up. the last thing to be done is to put on the globes. See that they are firmly secure, so that a jar or shake will not knock them off. When all the fixtures are up turn on the gas and go over the burners, lighting every one. See that they are properly set as regards the flame; that they are clean, giving a flame of perfect



Gas and Gas Fitting.—Fig. 26.—Set Screw Fastening.

shape, and, above all, that the flame does not come in contact with the globes.

In putting up fixtures in low ceiling rooms, smoke bells had better be suspended over the jets. When this is done it is best to have them secured by suitable devices to the fixture, as it is not always possible to get a holding for a screw in just the right spot on the ceiling. When they must be suspended from the ceiling use very thin screws that will go into a lath without splitting it. Nearly all English made gasaliers are provided with a ball and socket joint at the top, the American praetice being the reverse, except for special fixtures.

Ball and socket joints should be provided for all large fixtures. When used see that they are well greased with good tal'ow, and secure them to the nipple with a set serew. Also see that the two parts of the ball joint are secured with a set screw, as ball jointed fixtures are supposed to be moved and turned about, and unless firmly secured by set screws an ignorant or careless person is very apt to unscrew them by turning the wrong way. They should always be turned in the direction that would screw up or tighten the joint, should it happen to be loose. The set screw precaution is especially necessary when crystal gasaliers are in question. A weak apot in crystal gasaliers is the plaster setting—that is, where the crystal parts are set into the metal, plaster of paris being

<sup>\*</sup> Copyrighted, 1894, by David Williams.

usually employed for making the joint. Rooms in which old crystal gasaliers are hung are apt to smell of gas. This will generally be found to preceed from the setting. In time the gas saturates the plaster and is given oil in many small but distinctly perceptible quantities. It is semetimes possible to cure the trouble by carefully painting around the setting with white lead or white shellae varuish, but when fixtures get into the aforementioned condition, they should be taken apart and the joints reset.

Having used sure that all your burners are right, fitting plumb and level as the case may be, ornaments in place, and that no red or white lead is in evidence where it should not be, no finger marks on the fittings or globes (I take it for granted that the fitter has not marked the walls or ceilings), and that all litter has been cleared up, it is in order again to test the job. This time it may be done by means of the meter. Mark the position of the index on the meter dial—the top dial on the metal index (see Fig. 27). This dial

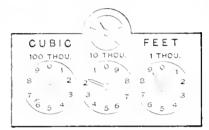


Fig. 27.-Meter Dial Plate.

and pointer serve to mark the single feet and parts of feet of gas passing through the meter and the pointer travels comparatively fast. If its position is marked, and all cocks being shut, it is left for a short time, say 15 minutes or half an hour, and it remains in its position as marked, the job may be passed as tight. It is well in new work to test the meter by opening one or two cocks and lighting the burners in order to see that the meter is in working order, and watching the indicator hand. Also light up all the gas at the same time in order to ascertain that there is a free delivery of gas in sufficient proportion at each burner.

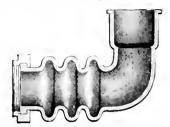
#### Gas Logs.

The gasaliers and brackets being connected and tested, it is next in order to attend to the connections for the gas fires and stoves. The points to be ob served are, first, as to the setting of the gas logs, or basket grates. When logs are used, or grates of the movable kind, care must be taken to have them set properly in the fire place, central as regards the width of the fire place, and far enough back to insure the free escape of the products of combustion up the chimney flue. The throat of the chimney should not be left full open, but should be provided with a metal stopper having in it an adjustable damper that can be entirely closed when no fire is used, and having a notched ratchet attachment by means of which the size of opening in the damper can be regulated.

The cocks for controlling the supply of gas to the firea must be so placed as to be easy of access when the fire is burning. They are sometimes fitted by the man who pipes the house under the flooring and outside the hearth at one side. In such cases a socket key must be provided to pass through the floor for turning the cock. Again, they may be placed above the floor, outside the fire place, at one side of the mantel.

When it is necessary to have them immediately under the grste or log, they must be provided with a key long enough to clear the front of the log or grate and be attached to the cock. Gas stoves are generally provided with cocks for controlling the different burners, but must have in addition an independent cock on the main supply to the stove for shutting off the whole apparatus. A suitable hood should be fitted over cooking burners, having a pipe connected to the nearest flue for carrying off the fumes of cooking, and when the stove is provided with a collar for yeut flue, the pipe from it may be attached to the pipe from the hood leading to the flue.

Fit keys in these pipes and try all burrers, seeing that all the heat burners give the proper heat flame (blue), otherwise they will give poor results, forming soot on the bottom of cooking vessels and giving off foul odors. When gas fires are used, requiring the white or light flame, see that all the holes in the log or fire are free, and that the gas ignites at all of them, so that unconsumed gas may not escape. imitation coal fires are used by piling lump asbestos in a grate over a suitable burner or set of burners, see that the lumps are so arranged as to give the effect of a real coal fire, and to this end, when the lumps are perforated, pilc them over the burners in such a way as to permit the gas and flame to pass will enter the horn of the bowl, when the flange will expand and hold firmly to the inside of the bowl. The lock nut is then applied with the washer in the usual way. If the horn of the closet is broken off very unevenly it is first trimmed with a cold chisel and a little white lead applied. The brass



Vanderman's Water Closet Connectors.— Fig. 1.—Expansible Connector.

tail pipe, or connector, is cut to the standard thread, and any standard lock nut and coupling will fit the connector.

#### TRAPS AND VENTS.

THE FIRM of Abden & Steiner, plumbers, Fort Wayne, Ind., has been dissolved.

AN ITEM from a Pittsburgh paper states that Plumbing Iospectors William Layden and W. T. Taggert have completed the inspection of all the hotels, restaurants and business blocks in

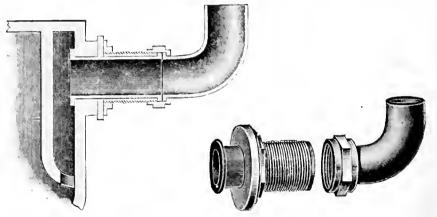


Fig. 2.—Section through Elastic Connector.

Fig. 3.—Showing Parts of Elastic Connector.

freely through the openings. A little asbestos fiber judiciously arranged among the lumps adds very much to the general effect.

## Vanderman's Water Closet Connectors.

The accompanying illustrations show new goods brought out by the Vanderman Plumbing & Heating Company of Willimantic, Conn., that will be of particular interest to the plumbing trade. Fig. 1 is a sectional view of Vanderman's expansible water closet connector, intended for connecting the flush pipe to water closets. This device, it is pointed out, will permit of a large range of adjustment between the closet and the flush pipe, and, furthermore, is adjustable in any direction. Its simplicity and utility are particularly alluded to by the manufacturers.

Figs. 2 and 3 are illustrations of Van-

Figs. 2 and 3 are illustrations of Vanderman's elastic water closet connector for repairing broken flush pipe connections. They are used when the horn of the closet is broken and it is necessary to connect the flush pipes. It is easily applied and is said to make a strong and tight connection. In using it, the flange end of the rubber connector is compressed or folded so that the flange

Pittsburgh, with the result of condemning over \$10,000 worth of plumbing, principally in hotels and restaurants.

THE PLUMBING FIRM of Stevens, McGrath & Gilchrist, 184 East Market atreet, Hazleton, Pa., has been succeeded by the new firm of Stevens & Gilchrist.

- O. A. Toner has removed his plumbing establishment to 116 High street, Oshkosh, Wis.
- C. HAVEN & Co. bave dissolved partnership. Clarence Haven of the firm retired and the business will be continued by Charles Defenbar of the firm.

THE TRADE will be pleased to learn of the marrisge of H B. Middlebrook, a well-known master plumber, of Bridgeport, Conn., which took place Thursday evening, September 6.

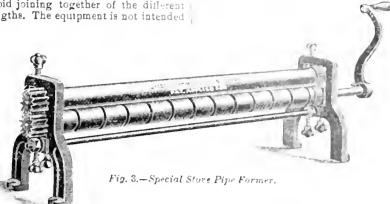
- J. J. WAFER is about to open a plumbing and heating establishment in O:tawa, Ill. Mr. Wafer has for the last 15 years been located in Denver, Col.
- A NEW PLUMBING FIRM, under the style of W. B. Chaney & Son, has opened up in the basement of the Metropolitan Block, Lima, Ohio.

#### Stove Pipe or Leader Ontfit.

Jscob Brombacher's Sons, 30 Cliff street, New York, are offering a series of machines, as shown in Figs. 1, 2 and 3, designed especially for the rapid and cheap manufacture of riveted pipe by hand and foot power where steam or other power is not available. The outfit consists of a square shear to cut sheets to the desired length; next a gang punch, illustrated in Fig. 1, which punches all the holes on one side of the sheet at once, the process being duplicated on the other side of the sheet; next of a machine represented by Fig. 2, which folds the edge on the sheet after the rivets are put in place, and is arranged so that the rivets neither fall out while the operation of folding is out while the operation of loiding is being performed nor after it is finished, as the lock is forced down on the head of the rivets, holding them in place, so that if necessary the pipe can be shipped rolled up or nested, without being riveted, to economize freight. The next process requires a specially ar-

can buy it. In addition to its being adapted to stove pipe it is available for leader pipe, and when so wanted a specially designed mandrel is sent along with a gauge, which permits of the rapid joining together of the different lengths. The equipment is not intended

and regular 30-inch squaring shear, not i'lustrated, belongs to the set. Samples of the pipe made by this method, to-



for smaller than 3 inch pipe, although, at some sacrifice in the speed of pro-

duction, pipe as small as 2 inches can be made. For pipe as small as this, how-

gether with prices and detailed information, can be obtained of the makers.

#### Bertsch's Combined Punch and Shear.

The accompanying illustration shows an improved combined punch and shear



Store Pipe or Leader Outfit .- Fig. 1 .- Gang Punch.

Bertsch's Combined Punch and Shear.

ranged machine for rolling up and crimping the pipe in one operation, and, as will be seen by reference to the cut in Fig. 3, the roller is so arranged as to allow of the rivets passing through without interference. This outfit has been tested, and is referred to as a success. While the production is not as rapid and therefore not as cheap as where power can be used, it is sufficiently rapid in results, the manufacturers say, to enable tinners of small means to

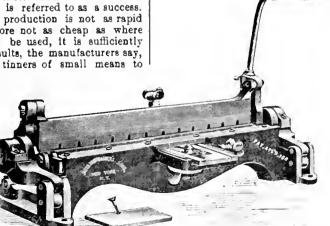


Fig. 2.—Special Fotder.

make their own pipe and supply the ever, another outfit is recommended, surrounding territory cheaper than they which is now being built. A mandrel

manufactured by Bertsch & Co , Cambridge City, Ind. It is intended for light and heavy sheet iron workers, and is made in eight sizes with 4, 8, 12, 15 and 18 inch throat punch, adapted to punch flange and angle iron, and has 8, 10, 12 and 18 inch blades to cut round or flat bar iron in sheets up to all inch plate. Referring to the illustration, it will be seen that the working parts of the punch and shear are not combined, but are independent of each other. The punch and shear are each provided with a lever socket, so that it is convenient for two to use the machine at once, except when cutting long sheets. The lever on the punch will work from the front or rear, while the lever socket on the shear has a series of holes for adjusting the knife bar links, so as to cut but half the length of blades, which increases the power, it is claimed, from 50 to 100 per cent. The knife bar has a bearing on the rear side to prevent springing. With the tool to prevent springing. With the tool are furnished three sets of punches and dies, back gauge, improved side pin gauge for punching holes at equal distances apart without marking off and strengthening bolts for the deep throat

## HEATING DO PLUMBING.

NEW WORK AND CONTRACTS.

JOSEPH ADDIS, Allentown, Pa., has been awarded the contract for putting in a steam heating plant in the Gilbert House, at Weatherley.

THE CONTRACT for heating and ventilating the new University of Cincin nati has been awarded to E. M. Link Machinery Company of Erie, Pa.

THE CONTRACT for the plumbing work in the new McCusker & Hahne Block. Danville, Ill., was awarded to King Brothers.

THE WELLS & NEWTON COMPANY, having branch (thee at 712 Union Trust Building, St. Louis, Mo., have just completed the plumbing contracts in the new Union Trust Building, and are now constructing the heating apparatus in several St. Louis school buildings, as well as doing work in residences and offices.

THE COMMITTEE ON HEATING AND VENTILATION of the Board of Education, Brooklyn, N. Y., have awarded contracts to E Rutzler of New York, for heating and ventilating schools No. 23, No. 55 and No. 88.

DE Long & Sons, Glens Falls, N. Y., has been awarded the contract for furnishing the heating apparatus for the new school building in District No. 10.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until September 28 for a disinfecting plant for the United States Quarantine Station, San Diego, Cal. Drawings and specifications may be obtained from the Supervising Architect, Washington, or from the Custodian at San Diego.

The Building Committee to whom were referred the bids for heating, plumbing and wiring the new County House at Rome, N. Y., reported in favor of the acceptance of the following bids, and the report was unanimously adopted: Steam heating, Charles H. Jackson, \$11,849; plumbing, Cahill Brothers, \$5449; wiring, William F. Bassert, \$2350.

SEALED PROPOSALS will be received at the effice of the Supervising Architect, Washington, D. C., until September 26, for the steam heating apparatus for the United States Post Office Building at Lewiston, Mainc. Drawings and specifications may be obtained from the Supervising Architect, Washington, or from the superintendent at Lewiston.

William G. Waters will begin working on the plumbing of four new houses in Fairhaven, Conn.

THE BOARD OF EDUCATION OF East St. Louis have awarded the plumbing contract in the new High School to the City Plumbing & Gas Fitting Company for \$1585.

THE SCHOOL BOARD of Lynchburg, Va., have been authorized to expend \$3000 for new heating apparatus for the school buildings.

F. O. WALKER, Mexico, Maine, will put in the heating apparatus in the new school house in that place.

FRANCIS BROTHERS & JELLETT are to make extensive alterations and additions to the heating plant at 1428 Walnut street, Philadelphia, the cost to be \$2500

THE CONTRACT for heating the new engine house on Holly atreet, South Framingham, Mass., has been awarded to H. L. Sawyer.

Among the contracts recently taken for warm air heating by the Fuller-Warren Company, 134 Lake street, Chicago, may be mentioned the following: Flat building of W. C. Swern, 1519 West Adams street; residence of W. Ander, 401 Ontarlo street; two residences at liyde Park, and an eight-toom school building at Phillips, Wis.

THE KELLY & JONES COMPANY, 48-52 North Clinton street, Chicago, have contracts for steam heating in the Colonial Hovel, Sixty-third street and Ogelsby avenue, and Robert Fulton School, State and Fifty third streets.

Amono the contracts recently taken for plumbing, gas fitting and sewerage by J. J. Wade & Son, 279 Dearborn street, Chicago, can be mentioned the following: Chicago Canal & Dock Building, 362 to 372 Illinois street; Rellance Building, 15 stories, Washington and State streets; State Safety Building, 12 stories, State street and Wabash avenue; Kent Building, ten stories, Franklin and Van Buren atreets.

E. E. Noves 584 West Lake atreet, Chicago, has the contract for the copper cornice, bay windows, skylights and slate roofing for the flat building of Mrs. J. Memhard, 1669 West Monroe street.

THE THEO. JACOBS COMPANY, 72-74 Market street, Chicago, are to iostall a hot water heating plant in the residence of William Beat, 4320 Jackson Boulevard.

James A. Miller & Bro., 129-131 South Clinton street, Chicago, report the following new contracts: E. J. Lehman estate, 475 Wabash avenue, new skylights; Mrs. H. G. Woodward's residence, Forty-eighth street and Grand Boulevard, slate roofing and copper cornices; Art Institute, skylights for studio building; Brevort House, new skylights; T. C. Wegeforth, Monroe street and Central Park avenue, slate roofing and copper work; village of Galva, Ill., slate roof on water works building.

FOSTER & GLIDDEN, 53 Desrborn street, Chicago, are to install hot water heating plants in the four houses of R. W. Roloson, Calumet avenue near Thirty-second street.

KEUM BROS. & MERTZ, 289 East Kinzie street, Chicago, have the following contracts for steam heating: Flat building of L. N. Aranto, 1648 Fulton street; flat building of J. J. Schillo, 218 Mohawk street; residence of Dr. Z. E. Patrick, Woodlawn Park.

The Grand Rapids Refrigerator Company of Grand Rapids, Mich., manufacturers of the Leonard cleanable hardwood Refrigerators, have favored us with a copy of an attractive publication entitled "Grand Rapids As It Is." The growth of this enterprising city is indicated in the fact that its population was 8085 in 1860; 32,016 in 1880, and is now 80,020. The book, which is published by the Grand Rapids Board of Trade, comprises 52 pages, finely illustrated, giving views of public buildings, office and business blocks, factories, handsome private residences, &c. It is not loaded down with details regarding business enterprises, and therefore avoids the appearance of mere advertising. A view is given of the factory of the Grand Rapids Refrigerator Company, which is shown to be an imposing structure,

six stories and basement. The book does not show either of the company's large warehouses used for storage purposes, one of which is 100 x 100 feet, four stories and basement, and the other is 50 x 275 feet, one story 24 feet high in the clear. The factory, which is illustrated, is used exclusively for manufacturing purposes and has a capacity of 50,000 Refrigerators p-r annum. The company claim this to be the largest Refrigerator factory in the world. They announce that their new styles for 1895 are especially fine.

#### The Perfection Drum.

In the accompanying illustration we show what is known as the Perfection drum, with a portion of the outside shell cut away, clearly indicating the construction of the central chamber and the air and smoke flues. The arrows indicate the points at which the coldrair enters the six tubes, each of which is 23 inches in dismeter. After passing through the central chamber the heated



The Perfection Drum with a Portion of the Outer Casing Broken Away.

air is discharged through six tubes of the same size at the top. It will be noticed that the construction of the drum is such that the smoke passes around the pipes and heating chamber. This drum is being manufactured by I. B. Kinne & Son, 208 Nicollet avenue, Minneapolis, Minn., who state that its use will save a large percentage of the heat that is generally wasted by going up the chimney, and at the same time will not check the draft of the stove in connection with which it is employed. Two sizes are offered, the 12 inch drum having, it is stated, 2302 square inches of radiation and the 15-inch drum 3076 square inches.

The extraordinary falling off in immigration into the United States this year is illustrated in the returns for the month of July last, issued by the Bureau of Immigration, which show that the number of immigrants was only 17,859, as compared with 47,719 in July of last year. The decline is most strangely marked in arrivala from Austria, Hungary, Italy and Russia. Several governments, notably that of Italy, have notified their intending immigrants of the unfavorable conditions for employment existing in all lines of industry in this country.

# STOVE TRADE NOTES.

Hon, Amos C. Barstow,

In our last week's issue the death was briefly announced of Amos C. Bars tow, president of the Barstow Stove Company of Providence, R. I., who, after an active and successful business career of over 60 years, passed away at his residence, 12 Jackson street, Provi-dence, from the effects of a paralytic stroke which prestrated him a few days previously. In the death of Mr. Barstow the stove manufacturing industry loses one of its oldest and most esteemed representatives, and Providence one of her most useful and honored citizens.

Amos Chafee Bsrstow, whose portrait

is presented herewith, was born in Providence, R. I., on April 13, 1813, and virtually spent the whole of his long life in his native city. He was the native city. He was the son of Nathaniel Barstow, and a descendant in the fifth generation of William Barstow, who, in 1636, acttled at Dedham, Mass. He received his education in the public schools, and at the age of 17 years entered upon a mercantile career as a clerk in the stove and tinware establishment of James Eames, whose eldest daughter he afterward married. In 1836, at the age of 23 years, he commenced the manufacture of stoves on his own account, at Norton, Mass., and thus laid the foundation of his fortunes. In a few years Mr. Barstow trans-Ierred his foundry to a site on Point street, Providence, R. I., and started what is now the wellknown Baratow Stove Company, incorporated under that name in June, 1859. In later years Amos C. Barstow, Jr., and others became associated with him in the

concern, but he continued actively connected with the business, as presi dent of the company, up to the time of

his death. He was also interested in other concerns, including the Builders' Iron Foundry, the New England Butt Com-pany and the Gorham Mtg. Company, and was president of the Slater Mill & Power Company, the Providence Warehouse Company, the City National Bank and the Providence Gas Company, besides being connected as director or otherwise with several other banks and industrial or beneficent institutions. Mr. Barstow's business talents and interest in public affairs early recommended him to his fellow citizens as a desirable man for public office. He was elected Mayor of Providence in 1852, besides serving several terms in the City Council as well as in the State Legis-lature, where he filled the post of Speaker of the House of Representatives

with conspicuous success. In 1875 he was appointed by President Grant a member of the Board of Indian Com-missioners, and in 1878 he was made chairman of the board, a position he held for several years, giving freely of his time and money for the improve-ment of the condition of the Indians, and making many long and arduous journeys on business connected with the commission.

His efforts throughout the whole of his prolonged life were directed toward the promotion of truth and righteousness and the betterment of his fellow men. He was an ardent advocate of temperauce, and took a leading part in the anti-slavery movement before and



AMOS C. BARSTOW.

during the war. He was prominent in church work, and was a liberal contributor to charities. Mr. Barstow was for many years a deacon in the Beneficent Congregational Church, as well as superintendent of the Sunday school. served several times as president of the Congregational Club, and was a member of the National Congregational Council. He was also the first president of the Providence Y. M. C. A., and presided over a number of other religious and secular institutions. He traveled considerably and published accounts of his voyages in the form of "Letters from Europe," "Letters from California," &c. His literary efforts, which have been printed, also include poems and articles on the Southern and Indian questions, temperance and other topics. Dying full of years and honor, Mr. Bar-stow was followed to his grave by many who regretted the loss of a revered friend and trusted adviser.

The Ohio Stove Trage.

A very conservative tone characterizes the Information received from stove manufacturers and dealers in Cincinnati and the territory embraced within a radius of 200 miles from the city as a center. All are united, however, in testifying to the dull trade and extreme depression during July and the greater part of August. Respecting the Indiana natural gas belt, business is reported to have been especially unsatisfactory, because of the unusual prostration among the manufacturing institutions. Shrink-

age in business in Ohio is estimated to be from 20 to 25 per cent. by some nanufacturers. while others believe they have suffered from 25 to 33½ per cent. From the Southern part of Michigan it is reported that there is a tendency this year more than ever to order samples only and compel manufacturers to carry the stocks. Now, however, manufacturers. with very few exceptions, are ln accord in acknowledging some improvement in the outlook end an increase in business. The improvement seems to have been inaugurated during the latter part of August, when many manufacturers placed orders for pig iron in that market. Since the opening of September the improvement has been more marked, some foundries reporting an increase of

20 to 25 per ccut. In orders, and one or two have experienced a growth of fully 50 per cent, over the volume of trade at the corresponding time last vear. One manufacturer in the North, however, dissents from this view: his orders, while being larger in number, are smaller in volume.

As a rule there is a disposition to remain extremely cautious and to avoid any accumulation of surplus stock. Dealers have held off so long, however, that they are obliged to enter the market, and as orders come in foundries which have been entirely idle or runing on half time are resuming and molders are now working full time. Late reports indicate that confidence is growing, although some manufacturers believe that the improvement will be short lived. Retailers are experiencing some l'ttle increase in sales, but are almost afraid to say so, for fear of frightening trade away; they say the army of unemployed must first find permanent work before any improvement can be substantial. One prominent and important feature in business is the demand from the South. For the first time in many seasons that section seems to be flourishing. This year they have good crops, while north of the Ohio grain, especially corn, has suffered from the protracted drought.

Dealers in ranges and furnaces are apparently receiving orders in larger proportion than for stoves, and they say beyond their expectation.

Prices are low, but the tendency is toward hardening rather than otherwise, in sympathy with raw material. Orders are quite liberally scattered, covering a wider territory than usual. Manufacturers as well as dealers allowed stocks to run very low, so that now, when orders come in for certain patterns, they are pushed to make early shipment. It is the experience of the trade that money matters are much better than last fall and more like the condition of affairs in the autumn of 1892.

#### Philadelphia Stove Trade.

That there is a better feeling in this market is evidenced by the fact that foundries are busier than they have been for some time. The larger foundries are averaging a five-day production each week, and the output of the smaller concerns shows marked improvement. In some foundries it has been demonstrated that a steady five-day production is about equal to what was formerly produced in a full week. This is attributed to the fact that there are fewer absentees among the employees when works are run on five days' time. Such being the case, it is a question whether the running will be increased.

Salesmen are returning from trips over their territories preparatory to starting on second trips. Their sales have been exceedingly light, and for the most part confined to cooking goods and furnaces, dealers deeming it good policy to hold their orders for heating stoves until later in the sesson. In the city of Philadelphia the furnace trade is brisk and is in strong competition with heating atoves, the demand for which latter is materially decreased thereby. Gae, gasoline and oil goods have been in good demand throughout the season, but refrigerators have moved slowly, and dealers find themselves with considerable stock still on hand.

The improved condition of business in general must certainly lend an impetus to the stove trade and enable a dealer to form some estimate on which to base his orders for fall stock. Many factories and plants that have been closed down are running again, and the

whom many dealers largely depend for patronage, is much improved. Crops have suffered greatly from the continued drought which has prevailed, but the better prices obtainable for produce will tend to offset the losses of farmers to a large extent. There are no strikes or labor disturbances in the sections dependent upon this maket, and there is a feeling of peaceful and growing activity prevailing which is gratifying alike to producer and consumer.

#### The Home Stove Company

of Indianapolis, Ind., have just brought out a catalogue of the cook stoves, ranges and heaters which they manufacture. The volume contains 56 pages, is profusely illustrated and bound in colored paper covers, on the second page of which is an index for facilitat ing reference. The leading place in the catalogue is given to the Model cook, a four-hole construction with sectional back wall, cemented top oven plate, large draw hearth, ball shaking and dumping grate and nickel trimmings. It is made in five sizes with ovens ranging from 11 x 16 x 16 to 13 x 20 x 20. Following this is the Model wood cook, made in a variety of styles and sizes, after which we find the Model four-hole range, adapted for burning coal. This is made in two sizes and a number of varieties. The Columbia four hole cook, a low priced construction of unpretentious appearance and embodying the modern features; the Kitchen Queen, for wood only, and made in four sizes; the New Home, for coal or wood, and the New Home range, are some of the other goods to which attention is invited. The patterns for the range have just been completed, and the company offer the stove as a first class construction of tasteful ornamentation and embodying the latest improvements. The heaters are repre sented by the Grand Oak, made in five sizes, for wood and coal; the Fair Oak, made in the asme number of sizes; the Model Oak, which is a medlum priced construction; the new air tight Model Oak, which is offered in two sizes; the new Model Franklin, adapted for gas or coal; the Home Franklin; the Home Air Tight, a square parlor stove for hard or soft coal, coke or gas; the Norman Queen; the New Cottage parlor atove; the Golden Rule Todd, a tastefully ornamented wood heater, offered in a large number of sizes; the Imperial box; the Home cannon; the Model sheet iron surface burner, and the Model gas Junior, for natural gas. The catalogue concludes with a list of atove hollow ware and trimmings.

#### The Grander Stove Company

of Royersford, Pa., have just issued a 94 page catalogue of their goods. It is well printed on a fine quality of printer and is bound in stiff paper covers, maroon colored, the front page bearing the company's name and a Bride range, the back page the company's monogram, all embossed and bronzed. The opening page contains a view of the company's works, and the four following pages are devoted to a presentation notice and a special notice embodyling terms and conditions of shipments. Page 6 opens the catalogue proper, and with nine followers covers a line of Bride ranges, most of which have

been redressed since last season. size is shown with a new high warming closet, made of heavy Craig sheet steel, with polished and nickeled iron frame and sliding doors. The Mentor, a new six hole range, la next in order, and is described as being a sheet flue range, with right or left oven door, ventilated oven, cabinet base, large fire box, automatic oven shelf, extension drop table and reversible pipe collar. Shiloh, Aline, Major, Merion, Malta, Lenor, Umpire, Iona and Junior ranges fol-low. The Junior range, with elevated boiler, presents a handsome appearance, having been redressed for this season's trade. In cook stoves the Peerless Oakland, Black Warrior and The line of Mlner's Home are shown. cooking goods concludes with the Favorite, a handsome brick set range with heavy castings and large oven. Two pages are devoted to pipe shelves and include the Venus, a new shelf, rich in ornam.ntation and attractive in appearance. Heating goods lead off with the Bride, a full revertible flue, base burning double heater, recently re-dressed. Other heating stoves are the Volga, double heater; the Mars, single heater, a direct draft or revertible fluo stove, in four sizes, which appeared on the market last season for the first time; the Milton direct draft double heater and the Milton single heater, the latter being new this sesson and pleasing in appearance, and the Beauty single heater, Topsy and Elma sheet iron stoves. A line of Globe stoves, fire place niches and fronts, four pages devoted to the Victorious portable heater and 21 pages covering gas goods, pricelists and tables complete the book.

#### ODD PLATES.

THERE ARE SOME FIRMS in every line of trade who are less doleful in times of business depression than some of their competitors, perhaps because they do not resort to the usual methods of economy and retrenchment in advertising and other expensive schemes to conform to a reduced amount of business, but who believe in an extension of such achemea to keep their business up to the normal volume if possible. spicuous among such concerns in the stove line is the Union Stove Works, 70 Beekman atreet, New York, who have added to their rolling stock a very large double truck, with high racks and gorgeously painted signs, that serves as a traveling advertisement of their house as well as a most convenient dray. new departure, too, with this firm is the adoption of a sample wagon, in which they have a few stoves, all mounted, polished and well secured, which the salesman exhlbits at the dealer's door to promote an interest in the company's goods and, if an order on the spot cannot be secured, to urge his presence at the warerooms to inspect the greater stock there displayed. The wagon, we understand is called the "prompter," and is undoubtedly a good ides in these times of business lethargy.

The death is announced as having taken place at Troy, N. Y., on Wednes day, September 5, of Mrs. P. P. Sewart, at the advanced age of 88 years. She was the widow of P. P. Stewart, the inventor of the well-known P. P. Stewart Summer and Winter Cooking Stove, manufactured by the Fuller & Warren Company of Troy. It was due to the influence and encouragement of his wife that Mr. Stewart persevered and experimented so persistently with his famous atove. Mrs. Stewart

survived her husband 26 years. She and her husband were both active in the founding of Oberlin College, and in other beneficent work. Since the death of Mr. Stewart, in 1868, his widow had lived very quietly in Troy, where, until within a very few years, she was a very active worker in her church and in other charitable and religious fields.

THE PITTSBURGH Dispatch speaks highly of the effective display of gas stoves and ranges made at the lately opened Pittsburgh Exposition by J. C. Bartlett & Co., of that city.

PRESS DISPATCHES from Reading, Pa., are to the effect that the employees of No. 1 Foundry of the Reading Stove Works began on Monday working six days in the week. For some time past it is stated they have only averaged about four days a week.

THE PALACE KING AND QUEEN FUR-NACES are the subjects of a 16-page pamphlet just issued by A. Bradley & Co., 200-202 Wood street, Pittsburgh, Pa. The goods are illustrated in such a way as to show the internal arrangement, and accompanying the engravings are tables giving the sizes made, dimensions and capacities, together with prices. Attention is also invited to the Palace King hot water boiler with and without nipple connections, and also to the Etna stovea and ranges. A long list of references occupy the closing pages of the pamphlet. The manufacturers state that their lines of heaters are arranged for high or low cellars, are simple in construction, have few joints and no bolts, are heavy and durable and free from gas and dust.

THE SILL STOVE WORKS of Rochester, N. Y., favor us with a four-page folder carrying "A Few Words to the Stove Merchant." By way of introduction brief reference is made to the general merits of the Sterling line of ranges, and attention called to the fact that a new range has been brought out. This is of handsome appearance, the ornamentation being rich and tasteful, and the constructive features of the most approved pattern. Among other points may be mentioned the fire box, which is extra large, oval in form and has an extra heavy brick lining, which is held in place without the aid of a bolt or fastening. It rests upon a special frame independent of the grate frame. Another feature is the company's patent lift hearth, which is raised up instead of awarg to one side to permit the removal of the ash pan. The oven is of large size and is fitted with the makers' transparent ventilating double oven door. Other features are referred to in such a way as to interest the dealer. who is asked by the company to read the folder from beginning to end, as it will be to his advantage so to do. A second folder is intended for the housekeeper and refera to the merita of the Sterling range.

The Salesman Repurt Book Company of Potiatown, Pa, have just brought out a copyrighted book intended for the use of traveling salesmen and referred to as being applicable to any line of business. A sample page of the book which is before us measures  $6\frac{1}{2} \times 9\frac{1}{2}$  inches and carries printed questions with blank spaces to be filled in by the salesmen. We understand the object of these repurts is to furnish the offices of any or all manufacturers and business houses with accurate and correct information concerning persons visited by their salesmen. The printed sheet calls for the travelet's

estimate of the character of the dealer in all its phases, his report of the goods handled by that dealer, and his estimate of the dealer's worth, standing and eredit. It also calls for many other items of information looking to the building up or increase of trade with that dealer and covers any special prices given and any settlement made. In using the book the traveler makes his report on every business house visited, and the report is filed away in the office for future reference. The secretary and treasurer of the company is H. M. Ebert, Pottstown, Pa.

"A LITTLE LIGHT ON A 'New 'DEA'" is the title of a booklet which is being distributed by Schill Brothers of Crestline, Ohio. Our readers will doubtless recognize the fact that New Idea is the name of the line of furnaces which the firm manufacture, and that the pages of the little book are devoted to an exposition of the merits of this heater. The story is told in verses, each of which occupies a page and is accompanied by an appropriate picture. The firm are made up of six members of the Schill family, and are claimed to be "the largest family making furnaces in the United States."

THE ENTERPRISE STOVE COMPANY of Vincenres, Ind., are distributing to their friends in the trade a cordial invitation to be present at the Abrual Vincennes Fair, to be field in the place named from October 8 to 13, inclusive.

The work of Reorganizing the Albany. Stove Company of Albany, N. Y., is making progress, and it is expected that the concern will soon be in shape to commence operations at their plant on upper Tivoli street. It is stated that James II. Carroll and John W. McNamara are the organizers and present owners of the plant.

HOLBROOK. MERRILL & STETSON have changed their quarters, dating from Sentember 1. and they are now to be found in the Home Life Insurance Company's Building, 256-257 Broadway. New York, where they will be glad to see their friends in the trade.

A CIRCULAR issued by the Fuller & Warren Company, Troy, N. Y., and braving the signature of Walter P. Werren, president, has, in accordance with the company's usual custom at this sessor, recently been distributed relating to business for the remainder of the year, and calling attention to various aubjects of interest. The atatement is made that the past six months has been an unusually busy time in their pattern department, and that they have placed upon the market many new goods, among the more prominent of which are several new ranges, a first-class parlor stove, and a full line of furnaces of great heating eapscity, with fire pots ranging from 18 to 35 irches in diam-The circular also calls attention to the fact that after September 10 the company will furnish repairs for stoves, furnaces and water heaters at the prices specified therein. In closing attention is called to the company's cipher code, for convenient use in ordering goods by

The Somenset Stove Foundry Company of Somerset, Mrss., are about issuing a new illustrated catalogue of their popular line of Somerset atoves and ranges, to which they have added a new feature. This consists of Goodfellow's improvements in grates, patented under the name Nonpareil. This is said to be a device to insure a fresh fire by removing the ashes on top

of the grate while the fire is burning and without interfering with it. The company have also secured the right to manufacture. Goodfellow's Improved non-pirati d and non-warping grate, also recently patented. With these new features added the company feel that there is nothing wanting to keep their salready popular go ds at the front. Business is reported quiet, but the company are running their works full especity.

The S Obermanner Company, Cincinnati, Ohio, report the dema, d for their productions, especially fine stove plate facings, as being excellent from all quarters, the month of July and August showing a larger volume of trade in their line than any similar period for some years past. The demand from small general foundries is also showing quite an improvement, and the company have received several orders from various blast furnaces, semething they have not had for 18 months past. Most of the orders received are for carlead lots.

HANSELL & Belson of 144 North Second street, Phuadelphia, have just published a 124-page catalogue descriptive of their line of goods. A large variety of cooking stoves and ranges are shown, including the Melrose, Hustler and Corker, all new five-hole ranges of neat design and moderate prices. A ful line of Liberty steel ranges is catalogued for the first time. Range boilers are made a special feature of the book. There is a good disp'ay of furnaces and heating stoves and large assortment of Globe and Laundry stoves. Hollow ware and kitchen goods are well represented, and gas, gasoline and oil stoves and their auxiliaries and refrigerators are assigned ample space to show the large line carried by the The catalogue concludes price-lists of repairs and miscellaneous goods, including two price-lists of mica, one giving the price per sheet, a list which will be much appreciated by dealers, no such list, it is elaimed, having been before published.

THE MICHIGAN STOVE COMPANY favor us with a sample of the large postera which they are now furnishing their agenta. These postera show itlustheir agenta. These posters show illustrations of six styles of Art Garland base burners. They are lithographed in colors on a cream tinted background while an illuminated border surrounds the whole. The poster is bound with metal borders at the top and bottom and is intended to be hung in a couapicuous place, to save the trouble of referring to the company's catalogue as well as to call attention to the beauty of this line of goods. The Michigan Stove Company are also furnishing triple signs, on which the dealer's name is read in front, "Garland Stoves and Ranges" at one side and "The World's Best" on the other side. An illustrated circular ta being distributed explaining the character of these signs. We have also received from the same company a beautifully printed circular calling attention to Syphon Oak Garlands, which are base heating oaks. They are made with the flue entirely encircling the base, the ashes falling through an opening in the center. The feed door opening in the center. The feed door is on the side and has a tilting device by which the direct damper is opened whenever the door opens, thus preventing smoke from issuing into the room. An independent circulating flue la provided for furnishing extra heat by reeeiving air from the room at the bottom of the stove and discharging it at the top. The fittings are all constructed to

insure tightness. These stoves are offered at only a trifling advance in price over direct draft stoves of the same estimated capacity.

GEORGE M. CLARK & Co., 149 to 161 Superior street, Chicago, handled a much larger business in the month i ist closed than in August, 1893. Their gas stove trade especially shows a large increase, having been stimulated to some extent by the gas war in certain The gas stove manufacturers will also reap considerable benefit from the gas war now ovening in Chicago, which is effecting a material reduction in rates charged by the rival companies. The firm's salesmen are all out actively working for orders. They have a new gas stove eatalogue in press, to be ready for distribution in a week or two. It will show a new line of gas heaters, called Jewel gas radiators, in addition to lines formerly made. Prices have been reduced from 50 cents to \$2 each on gas heaters. The firm's gas stoves will be exclusively used in the kitchen of the Pure Food Exhibition, which opens in Chicago October 1, to run two They will also make an exhibit in a booth covering a double space, showing various styles of stoves operated with manufactured and natural

WITH REGARD to the division of business interests in the Baxter Stove Company of Mansfield, Ohio, the following extracts from a recent letter will prove of interest: "The fact that coal and wood cook stoves are competing lines to vapor and gas stoves has militated, in our opinion, against the accomplishment of the best results, and on account of the further fact that a division of efforts in pushing two lines has a tendency to conflict with the best work, we thought it best to divide the business. We have two organizations, each working independently, and by concentrating the entire attention and efforts of each to its own special line better results will be secured. It has therefore been decided that the Baxter Stove Company will hereafter be manufacturers only of Baxter's Binner stoves, while the Monarch vapor and gas stoves will be manufactured and sold exclusively by the Monarch Gas & Vapor Stove Company. Toe former concern is composed of all the members heretofore identified with the company except Emmett C. Baxter, who retires from all ownership in the old company. In exchange for his in-terests he takes one-half the business of the Monarch lines, selling out his stock in the Baxter Stove Company to John L. Bixter, who will be the largest atoek holder and manager of the old company. In the Monarch branch Berry A. and Edwin D. Baxter will be associated with Emmett C. Baxter, retaining, however, an equal interest in the old company. The new company will continue to manufacture their goods in the factory of the Baxter Stove Company, and their office will be in the same building, but an absolute divorce has been agreed upon, and independent concerns will do business." The management is confi The management is confident that this step will redound to the advantage of Banner and Monarch stoves, and the manufacturers bespeak for the two lines the same kind and cordial treatment heretofo: e accorded them by the trade. Plans have already been matured for adding some very attractive new goods to the Banner line, and the friends of the company may also look for something interesting in Monarch something interesting stoves for 1895.

THE RINGEN STOVE COMPANY of St. Louis, Mo., have just issued from the

press an eight-page circular printed in blue-black ink, illustrative and descriptive of the Electric coal oil heater. The engravings show the general appearance of several varieties of the stove, a vertical section giving an idea of the internal arrangement, while other views represent the burner and oil reservoir. The vertical section on the first page of the circular illustrates the ventiduct tlues which extend from the base to the top of the stove and are so located that their entire surface is exposed to the direct heat of the burner. Air enters at the base of the stove, passes entirely around the oil reservoir, keeping its contents cool, and coming in contact with the heated flues, escapes at the top of the stove at a high temperature. By this plan a constant circulation of air is maintained which at the same time aids in the distribution of the heat, tending to produce a uniform temperature throughout the room.

#### Trade Notes.

THE PAGE ANNOUNCEMENT of the Bucket Pump Company. Cincinnati, Ohio, calls attention to seasonable goods. The illustrations show the appearance of the one-piece steel corrugated triple bottom Coal Hod which they manufacture, and the manner of constructing it is indicated also in the illustration.

The Illinois Roofing & Supply Company, agents, 203 Lake street, Chicago, are directing attention to Gilbertson's Old Method Roofing Tin, which they handle. They refer to this Plate and give prices.

THE TRADE will be interested in the announcement elsewhere of Benjamin C. Smith, 275 Pearl street, New York, in which attention is directed to heavy Water Back Couplings, illustrations of the goods being presented.

THE ANNOUNCEMENT O'E. S Wheeler & Co., New Haven, Conn., states that owing to the lower tariff the price on Gilbertson's Old Method Roofing Tin has been reduced \$2.50 per box of 20 x 28 for delivery after October 1.

THE PAGE ANNOUNCEMENT Of Richardson & Morgan Company, 92 Beekman street, New York, is devoted to the Cyclone Hot Air Furnace, a view of which is presented. The firm also allude to their Furnaces, Steam Boilers, Ranges, &c.

THE TWIN BURNER VAPOR STOVE COMPANY, St. Louis, in their advertise ment in another part of this issue call attention to their Twin Burner Combination Tinners' and Plumbers' Furnace. This Furnace has many features which make it valuable for either tinners' or plumbers' use. They are strong and substantially built, and as the company are closing them out, the price, we understand, will be found very reasonable.

ISAAC A. SHEPPARD & Co., Philadelphia, while extending the sale of their well known Paragon Furnaces, do not wish the trade to get into the way of thinking that Paragons are the only Furnaces they make Advantage is taken this week of a number of our forward pages to ahow a line of Furnaces from which it may be gathered that the makers are sole to satisfy the demands of anybody wanting a Furnace "as is a Furnace," at a reasonable price.

LALANCE & GROSJEAN MFG. COM-PANY, 19 Cliff street, New York, are having a great call for their improved

"L & G." garbage pail or cell bucket, which is found to be particularly adapted for use in flats, tenements and institutions. They have, among other similar establishments, recently fitted out all the cells in the Kings County Penitentiary, Brooklyn, with these articles. The advantages claimed for the pail are its strength, lightness and imperviousness; also, that being of wood, with agate or crystal steel enameled lining, the utensil is easily and effectively cleaned and kept a weet.

The Geauga Foundry & Mfg. Company, Painesville, Ohio, have long been known as manufacturers of Stoves but they have re-ently added a special department to their plant in which they will make a line of standard specialties under the trade-mark or brand of "Ohio" goods. Their initial list of such goods comprises the Ohio Water Tight Steel Mortar and Brick Hods, Ohio Steel Tack and Screw Boxes, Ohio Steel Tote Shop Boxes and Ohio Knock-down Stove Pipe. These goods are made under letters patent and are offered, it is stated, at very reasonable prices. The company have engaged C. M. Avery, who is well and favorably known to the trade, to act as their direct jobbing representative in this department of their works.

#### FLASHINGS.

RHODES, DICKELMAN & Co, Forest, Ohio, issue an illustrated circular for the fall trade which will be of interest to roofers and tinners generally. The first article noted is the patent slip joint reversible cave trough. The Mundwiler hanger is illustrated and described. Reference is also made to other eave troughs, end pieces, conductor pipe, elbows, ridging, &c.

APPLICATIONS have been received for instruction in the proposed class in sheet metal pattern cutting at the Pratt Institute Trade School, Brooklyn, N. Y., to the number of 14 or 15, showing that a real demand for this branch of trade education does exist among the younger members of the roofing and sheet metal trades in this vicinity. It is expected that the class in question will be started before the close of this month, so as to run concurrently with the other trade classes. In case any of our readers who may be desirous of availing themselves of this opportunity should not have noticed the previous references in The Metal Worker to this proposed class, they are referred for all information on the subject to Prof. C. R. R'chards, director of the department of science and technology, Pratt Institute, Brooklyn, N. Y. It is desirable that would be pupils should trans. mit their applicatio :s without delay, so that it may be known for how large a class it will be necessary to provide.

THE ST PAUL ROOFING, CORNICE & ORNAMENT COMPANY St Paul. Minn., send out advertising postal cards indicating the line of their work. On the back are small engravings of sheet metal fronts of different sorts, fron abutters, vanes, skylights, &c.

RHODES, DICKLEMAN & Co, Forest, Ohio, in a recent letter, state that they have been very busily engaged in getting their conductor plant in operation, which was completed a few days since, and are now producing conductor pipe recond to none in point of quality and amount. They add that their reversible cave trough has proven itself a success in the highest degree judging from the way orders are coming in, this latter article being now handled by jobbers and dealers in over 22 States.

# TRADE REPORT.

#### The Iron Market.

The effect of the general resumption of work among the Coke furnaces of the Central West is clearly shown in the statistics for September 1. On that date the capacity active was 125,879 tons per week, against 94,707 tons on August 1. For the whole country the weekly preduction rose from 115,356 tons on August 1 to 151,113 tors on September 1, the highest reached since July 1, 1893.

The grave question is whether the trade can stand this rate of production without a serious effect upon prices. It is true that in August stocks were s'ill declining, but it must be remembered that the majority of furnaces did not blow in until the end of August.

The leading producer of Pig Iron in the South reports some good sales, two weeks aggregating over 40,000 tons. Among these is a block of 12,000 tons to a local Pipe foundry, 4000 tons to a Louisville Pipe foundry, and 10,000 tons to a Cincinnati firm of merchants, with option to double the quantity. All these sales, we are told, were made at current prices.

The market for Charcoal Iron has been in a terrible condition lately. In Chicago bankrupt stock is being forced on the market, and \$13 has become an open quotation in that market.

Pig Iron.—The New York market continues very quiet, some sales agents reporting inquiries small and far between. We quote standard brands \$12 50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tldewater. Southern Iron, same delivery, \$11.50 @ \$12 for No. 1; \$11 @ \$11.25 for No. 2; \$10.35 @ \$10.50 for No. 3; \$10.75 @ \$11 for No. 2 Soft, and \$11 @ \$11.25 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25. The freight from Birmingham is \$3.50.

Sellers report a very good demand for all grades of Pig fron in the Philadelphia district, and in most cases deliveries are called for almost as rapidly as the furnaces can make them. There is an intimation of an advance in freights from the South to take effect on the first of the month, and this may have some influence on the market, but for the present consumers are perfectly easy, feeling sure of being able to get all the Iron they want at rates now current. General quotations for Philadelphia and equivalent points are about as follows:

Standard No. 1 Foundry X . Standard No. 2 Foundry X	\$12.50 @ 11.50 @	\$13.00 12.00
No. 2 Plain.		11.(n)
No. 1 Soft		11,75
No. 2 Soft	10.75 Œ	11.00

The outlook in the Chicago market is reported as still very encouraging from the standpoint of local producers. They have enjoyed another week of good business, with an excellent demand from general consumers. Few orders for round lots were entered, but negotiations are pending for considerable quantities. One company are now so well sold up as to talk confidently of advancing prices. The inquiry for Southern Iron is a little better, but sales

are light. Holders of bankrupt stocks of Lake Superior Charcoal Iron are more persistently forcing them upon the market, and are therefore offering them at very low prices. Makers' quotations on guaranteed brands and grades are firmly held. Quotations are given as follows for cash'

Lake Superior Charcoal	\$13.00 @	\$15.00
Local Coke Foundry, No. 1	10.25 @	10,50
tocal Coke Foundry, No. 2	10.00 @	10,25
Local Coke Foundry, No. 3	9.50 🚳	10.00
Local Scotch	10.25 %	10.50
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	(6	
Southern Silvery, No. 2	@	
Southern Coke, No. 2	10.75 @	11.25
Southern Coke, No. 3	10.50 @	-10.75
Southern, No. 1. Soft	10.75 @	11.25
Southern. No. 2, Soft	10.50 @	10.75
Alabama Car Wheel	17.50 @	15.00
Jackson County Silvery	15.50 65	16,00
Other Ohio Silvery	14.25 @	14.50

In Pittsburgh and its vicinity the market for Bessemer Pig has shown a further decline during the week, and the expectation prevails that prices will still further decline, as purchases are made only on close delivery. Foundry Iron continues quiet in demand, but prices are being sustained. Quotations are given as follows:

Cincinnati advices indicate that there has been more increase in the sales of Southern Pig Iron during the week, but the offerings were ample while not excessive, and prices are without quotable change. The Iron Pipe works were the chief buyera in this and the Southern district. There is some inquiry from Agricultural works, but they have not bought largely as yet, and the jobbing foundries have not increased their purchases to any large extent. There have been several sales of 500-ton lots, and some of 1000 tons, running through this year and three months into next year, amounting in the aggregate to upward of 10.000 tons, but prices are the same for all deliveries. There is not much demand for Charcoal Iron, but there continue to be small sales. There is scarcely any buying by Stove works. Some moderate quantities have been taken for Eastern shipment, mainly of No. 2 Foundry. Quotations are as follows:

There is no change to note in the Pig Iron situation in St. Louis. The volume of business during the week has been fair and prices ruling are unchanged. There are no large purchases and there does not seem to be any disposition on the part of consumers to anticipate their wants and provide for the future. Consumption is gradually increasing and as there are no large accumulations of Iron on the furnace banks, it is possible that prices may improve. The present situation, however, does not warrant the state-

ment that any improvement in this direction is likely to occur. We quote as follows for each, f.o.b. St. Louis:

 Southern Coke, No. 1 Fourdary
 \$11.00 \$11.25

 Southern Coke, No. 2 Foundry
 10.25 \$10.50

 Southern Coke, No. 3 Foundry
 9.75 \$10.00

 Southern Car Wheel
 16.50 \$17.00

#### Metal Market.

Pig Tin.— The market has been almost wholly under apeculative control and the dealings have reached a considerable total. Several hundred tons were sold to consumers early in the week, but the demand from this quarter has fallen off within the last few days. Wholesale prices have touched higher figures for spot stock, but deliveries for later months have gone at 0.25¢ below the highest point. Along with the fact that at least 20,000 tons of Tin are in sight, this discount on futures is at least suggestive. Prices for small lots remain at last week's level—namely, 17¢ @ 17½¢ ? Ib for Straits Pig.

Copper.—It is the general opinion that contracts closed during the past month or six weeks cover the requirements of most consumers for the balance of the year. The heavy shipments thus far indicate that the European marketa also have enough American Copper to meet their wants, and the last statistics warrant the inference that Europe has quite enough of other Copper as well. The proposed agreement to restrict production on both sides of the Atlantic has not been effected, and as far as the relation of supply and demand is concerned, the market does not appear to be in better position than it was when large sales of Lake Superior Ingot were made at 9¢ 7 lb. Still that price is bid by some operators, and 91¢ @ 91¢ named as the lowest at which wholesale purchases can be made. .n the retail trade the conditions are similar to those of last week. Although the demand from the smaller consumers is better than it was a few weeks back, orders and inquiries do not come up to expectations. Jobbers' prices are unchanged for both Inget and Sheet Copper. Manufactured Copper is, however, firmer, and there is talk of a posaibility of higher prices in the near

Pig Lead.—Under the influence of rather keen competition to sell among home producers and lively foreign offering the market has gradually weakened. In fact, it has approached a stage very close to demoralization. Foreign product has been put in at as low as 3.20¢ @ 3.22½¢ ex.vcssel. To meet this sellers of domestic Lead dropped their figures a trifle lower and subsequently assumed the aggressive position, letting prompt shipments go at 3.15¢ and soliciting bids of 3 10¢ for October and later delivery in a manner suggesting that the negotiation was strictly with a view to business. Purchases of about, 1000 to

1200 tons of foreign Lead have been closed since the new duty went into effect. Some was purchased by dealers, but the greater portion went to the combination of largest consumers. About sales of domestic Lead there has been more than usual reticence, but that a liberal business has been effected is morally certain. Probably some 3000 tons have changed hands, chiefly for future delivery. A fair buying movement is noted by jobbers, the price asked for small lots of American Pig being about 34 file.

Lead Pipe and Sheet.—The demand for Manufactured Lead is still below the average, although some of the smaller plumbers' supply houses appear to be receiving more orders than for some weeks past. Prices in this district are well maintained in accordance with the list quoted elsewhere.

Spelter —Business here has been only fair, and inquiries are of a very commonplace nature. From other quarters than the New York market, however, enough orders have been placed to tone up the Western market. Prices are firm for wholesale lots. Smaller quantities are quoted by jobbing houses at the same rates that have prevailed for some time past—namely, about 4½ for Ordinary Western, with the usual premium on fancy brands.

Antimony.—A moderate business only is passing, and prices do not vary much from  $10\frac{1}{4}\phi$  for Cookson's and  $9\frac{1}{2}\phi$  for Hallett's in small lots.

Nickel.—Prices remain on the basis of about  $40\phi$  for ordinary lots, early or prompt delivery.

Tin Plate.—The market bas been a disappointing one during the past week. Some few large consumers, who virtually buy direct, have, it is understood, placed fairly liberal orders for October and later deliveries, but can makera manifest indifferent interest, as do canners, while jobbers act as though afraid of the extremely low prices. They can purchase full weight Besse mer Steel Coke finish Plates at or very close to \$4, and 100 lb at \$3 80 or better. Siemens Steel are relatively as low, or on the basis of \$3.90 for 100 lb Dean grade Ternea may be had at \$3.921 @ \$3.95 for 14 x 20 and \$7.87 $\frac{1}{2}$  for 20 x 28, full weight, with discount on 20 x 28, full weight, with discount on 100 ib or lighter weight. Other Ternes are relatively as low. Charcoals are about \$4.65 for IC, Melyn grade, one-half Cross Allawaya at \$4.15 for do., full weight, and \$4 @ \$4.05 for 100 ib. Corresponding prices are made on other descriptions. Soot business on other descriptions. Spot business has been of a purely hand to mouth character, but a fair amount of small orders are passing, particularly in the department of domestic Roofing Plates. For small lots of Plates out of store prices grade, 1C, \$6; do., Melyn grade, Crosses, \$7.75; do., Allaway grade, IC, \$5 30; do., Allaway grade, IC, \$5 30; do., Allaway grade, IC, \$5 30; do., Allaway grade, IC, \$5.45; do., Grange grade, Crosses, \$6.40; do., Grange grade, IC, \$5.45; do., Grange grade, Crosses, \$6.45; do., Terne, M. F., 14 x 20, \$7.20; M. F. 20 x 28, \$14.40; Worcester, 14 x 20, \$5 70; do., 20 x 28, \$11; Alyn grade, 14 x 20, \$5.05; do., 20 x 28, \$10 @ \$10.25; D. R. D. grade, 14 x 20, \$4.85; do., 20 x 2°, \$9.70. IC Coke: Penlan grade, \$5; do., J. B. grade, 14 x 20, \$4.80; do., 95 lb, \$4.65; do., 90 lb, \$4.55. IC Bessemer Steel, Coke finish, 14 x 20, full weight, \$5.10; do., 100 lb. \$4.77\frac{1}{2}; do., 95 lb, \$4.62\frac{1}{2}; do., 90 lb, \$4.55. IC Bessemer Steel, Coke finish, 24.7 are about as follows: Charcoal, Melyn

\$5.30. IC Siemens Steel, Coke finish, sq., \$5.35. Wastera: S. T. P. grade, 14 x 20, \$4.60; do., S. T. P. grade, 20 x 28, \$4.80; do., Abercarne grade, 14 x 20, \$9; do. Abercarne grade, 20 x 28, scarce.

A special London cable diapatch to The Iron Age of September 13 reports on the British Tin Plate market as follows:

Tin Plate market looks better. The demand is steadily improving, and there is more inquiry for both prompt and forward shipments. Makers are more inclined to book orders at current rates. Sales have been made of fair lines of oil sizes. Swansca quotations at present are about as follows:

Bessemer Cokes, IC	10/6 @	
Siemens Cokes, IC	10/9 0	
J. B. Steel Cokes, IC. Dean Ternes, 20 x 28	10/9 @ -	
Charcoais, IC.	11/6 6	12.6

Sheet Iron.—The demand for Black Iron in this section shows little improvement, while prices are practically unchanged. Galvanized Sheets are more active and mills are generally behind hand with orders. Jobbers generally report a better inquiry in this line. Some large inquiries for Black Plates for tinning have been received from this side by the Welsh mills.

#### Chicago Report.

Scrap.—A much better movement is foreshadowed by increased inquiries for all kinds of Old Material. Dealers quote the following list of buying prices, Chicago delivery:

•		
Per	net ton.	Per fb
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6.00	••••
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2.00	• • • •
Plow Steel and Breaking	2.00	• • • •
Stook and breaking	4.00	
Stock No. 2, such as Shovels, Hoes,	4.00	••••
10. 2, such as Shovers, Hoes,	0.00	
&c	3.00	••••
Old Boilers—whole (Iron)	3.00	****
(tron)—cut in single		
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3.00	
Turnings	4 00	
Horseshoes	7.00	
Copper Bottoms		51/4
Copper Clips and Heavy.		7 ¢
Heavy Brass		516¢
Light Brass		2794
Pipe Lead.		3 6
Tea Lead	• • • •	21/4¢
Zine	• • • •	2 ¢
Zinc	• • • •	2 #
Rubber	• • • •	31/4

Anthracite. — Business — continues quiet and prices are soft. Carload lots of 12 net tons or over are nominally quoted as follows:

	Egg, Sto		
	Grate.	and Ch.	
Chicago, Ill	<b>\$</b> 5.25	<b>\$5.50</b>	
Milwoulton Wie			
Milwaukee, Wis	5.25	5.50	
Kansas City, Mo	8.45	8.70	
Council Bluffs, Iowa	8.45	8.70	
Lincoln. Neb	8.60	8.85	
Sione City Law			
Sioux City, Iowa	8.45	8.70	
Aberdeen, S. Dak	8.50	8.75	
Dubuque, Iowa	6.55	6.80	
Madison, Wis	6.75	7.00	
St Paul Minn			
St. Paul, Minn	7.75	8.00	
Burlington, lowa	6.75	7 00	
Des Moines, Iowa	8.20	8.45	
Davenport, Iowa	6,55		
St. Taxab M		6.80	
St. Joseph, Mo	8.45	8.70	
Leavenworth, Kan	8.45	8.70	
Omaha, Neb	8.45	8.70	

#### Colorado Anthracite.

#### COLORADO FUEL & IBON COMPANY.

Denver	\$8.00
ruenio	8.00
Colorado Springs	8.00
Leadville. Cheyenne, Wyo.	8.00 10.00
	10,00
Missouri River	8.85

#### CONDITION OF THE

### Hardware Trade.

USINESS is improving. Manu-DUSINESS is improving. Manufacturers and jobbers agree in referring to an increasing demand, better feeling and excellent prospects for continued improvement. This naturally is more marked in some lines than in others, and some manufactures and some manulines than in others, and some manufacturers speak in stronger terms than others of the increase in their business. There are, however, few lines in which an improved condition is not perceptible. There are indications also that the demand is setting in more freely in the South and Southwest than in the East and Northwest, but it is expected that things will soon take a favorable turn in these sections, and that before long there will be a general revival of business. While trade has assumed a larger volume than for some time orders are generally of moderate size, the trade evidently purchasing conservatively and without anything of a speculative feeling. It is noted also that the largest jobbing houses are still limiting their purchases for the most part to their early require-ments. In regard to many lines also there is a feeling on the part of some large buyers that while existing prices are not likely to be much further shaded, there is a good prospect of their continuing on about the present basis, so that not much risk is incurred of having to pay more for the goods in the near future, and they prefer to take the chance rather than order beyond their present requirements. There are others who take a somewhat more sanguine view of the situation and re-fer to the possibility of a shortage in some lines when an active demand sets in. In support of this view the undoubted fact that stocks in the hands of the trade are exceptionally light is referred to.

Advices from Chicago.—The volume of business in Shelf Hardware appears to be about the same as was reported last week. The improved condition of trade has led to the employment of additional salesmen by some houses who now see an opportunity to regain part of their trade, which was relinquished during the extreme depression. House Furnishing Goods are more active. The demand for staple goods is improving, but the country trade is still slow to speculate on the future. While orders are larger than they have been there is an absence of orders for carload lots. The ravages of forest fires in the Northwest are expected to result in a considerable volume of business to jobbers located nearest to the afflicted territory. The enterprising inhabitants of the devastated towns are rebuilding as rapidly as possible. The Heavy Hardware trade continues to improve and the volume of business in Iron and Steel considerably exceeds that for August. Prices are so low that a large addition must be made to the tonnage handled in order to compare favorably with past years, but profits are better in proportion to the amount of capital needed to conduct business. Collections are reported fair by some merchants and very good by others.

#### Notes on Prices.

Wire Nails.—The improvement to which we have referred during the past few weeks continues, and the mills which are in operation are doing a good business, their orders being mainly for lots of moderate size, the aggregate of which is, however, large. The largest buyers are not placing orders in excess of their early requirements, preferring

to take their chances as to the future course of the market. Prices are firmly maintained by the manufacturers on the basis of \$1 to \$1.05 for carload lots at mill. The New York price is \$1.20 on dock and \$1.25 to \$1.30 from store.

Advices from Chicago. - The situation remains about as stated last week. Manufacturers are doing a much better business in other sections than in this immediate vicinity. Large buyers here are holding off until they see that prices are absolutely rock rooted. Quotations continue at \$1.10 to \$1.15, Chicago, on factory lots. Jobbers report a considerably better movement, but thus far it has been almost entirely confined to small lots shipped from stock, on which they quote \$1.15 to \$1.20.

Cut Nails.—There is little change in the situation. The demand continues fair, and the price in the Eastern market is still represented by the quotation of 90 to 95 cents for carload lots on dock. The store price in New York in small lots is \$1.05 to \$1.10.

Advices from Chicago. - A decided improvement is experienced by manufacturers, who have been receiving a much larger number of orders recently. Buyers, however, are not disposed to enter contracts of any size for future delivery, preferring to order in small quantities and more frequently rather than to carry large stocks. Prices are unchanged at 95 cents, Chicago, for factory lots, on 60-cent average. bers quote small lots from stock at \$1.10

Barb Wire.—While the volume of business is not heavy the market is characterized by an excellent tone and the manufacturers are maintaining prices steadily. The market is still represented by the following quotations for Four-Point Galvanized, delivered at the points named: Pittsburgh, \$2 to \$2.05; Cleveland, \$2.05 to \$2.10; Cincinnati, Allentown, Chicago, or New York, \$2.20 to \$2.25.

Advices from Chicago. - The demand is somewhat of a disappointment. The slight movement noted two or three weeks since has not resulted in much of a growth. It is now believed that not much heavy business will be entered until after October 1. Prices for large lota do not seem to be affected, but small lots of Galvanized are now being shipped direct from the milla in this locality at \$2.25, while orders filled from jobbers' stocks bring \$2.35.

Cordage.-There has been but little change in the Cordage market during the past few weeks, prices remaining at substantially the same figures as for some time. The market is still in the hands of the jobbers, who are under-selling the manufacturers \(\frac{1}{2}\) to \(\frac{1}{2}\) cent a The demand is fair but not pound. heavv.

French Rat and Monse Traps.— Burditt & Williams, Boaton, announce reduced prices on the Marty French Traps for rats and mice, for which they are sole agenta in the United States. This reduction is made in view of the lower duties under the new tariff. The revised prices are as follows:

No.	F	er	dozen.
1, Rat Trap			\$15.00
3,	٠.	• • •	4.75
4, Mouse Trap		٠.	3.15
5,			

Standard Fiher Ware.-The Standard Fiber Ware Company, Mankato, Minn., have recently issued a revised price-list on their line of Standard

Fiber Ware goods. Many of the articles are unchanged, but reductions are made in a few, including Water Pails.

Glass .- The Glass scale for the ensuing fire has been settled upon the basis of a reduction in wages of 221 It is reported that since September 1 280 pots, or their equivalent, have been put in operation. The demand for Glass is fair, but does not show any increase over that of the previous two or three weeks. Business in Plate Glass continues good, the factories that are in operation turning out the usual amount of Glass. American Window Glass is quoted at 85 and 5 per cent. discount for single and 85 and 10 per cent. for double strength Glass Imported Window Glass still remains at 80 and 10 per cent. discount.

Old Metals .- The demand for Old Metals continues moderate with little change in prices. The following quotations represent about the rates now paid by New York dealers:

Heavy Copper
Light and Tinned Copper # 15 6
Heavy Brass D 4146
Light Brass \$2 15 384\$
Lead
Tea Lead % 1b 21/2#
Zinc₩ 15 2 ¢
No. 1 Pewter 10 10 ¢
No. 2 Pewter 2 10 5 ¢
Wronght Scrap Iron. # gross ton \$8.50
Heavy Cast Scrap. # gross ton 7.50
Stove Plate Scrap# gross ton 5.00
Burnt Iron

Old Rags, Paper, &c. - There is some improvement in the demand for Paper stock, but prices show no radical change. Dealers' prices, New York delivery, are quoted as follows:

No. 1 White Rags	D	3	@	3/10
No. 2 White Rags#	Ъ	17/8	@	2 ¢
Mixed Rags	D			8/10
Blues and 3ds		1	@	11/4
Hard Sized White Shavings₩				21/4
No.1 White Book Snavings #	Ъ	13/4	@	21/8
No.2 White Book Shavings		$1\frac{1}{8}$	Œ,	114
Light Book Shavings	ĪЪ		_	%€
No. 1 Mixed Shavings#	₽	76		
No. 2 Mixed Shavings	Þ			
No. 1 Printed Books 19	Į.	1	(A)	11/4
Ordinary Mixed Books	Þ	- 1/4	<b>@</b>	2-50
Newspapers	Þ			
No. 1 Manila Paper	В	8/4		1 \$
No. 2 Manila Paper	D	1/8	Œ,	3/4
Bogus Paper	Ď			14
Common Paper	В			14
Straw Chips	Þ			8/8
Binders' Clippinga	P			177
Jute Butts	P			1/89
No. 1 Jute Bagging	Do Do	8/	a	1 \$
Mixed Bagging	Th			
No. 2 Bagging	Th		(4)	2 4
Hemp Twine	-	2	(3)	21/60
Manila Rope	Ib			1840
Jute Rope	Īb	82	6	1/3
Mixed Rope₩	ш			
			1 -	- 2

Old Rubber .- Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, # D	0	<b>\$0.03</b> ½
livered at factory, # lb	_	
Rubber shoes, less than car- loads, & b	@	.04
Large Hose, \$\pi\$ ton	0	15.00 .03%
White Syringes, & B	Ø	

THE TRADE will take interest in the auction notice in this week's issue of E. Bissell. Son & Co., 12 Murray street, New York, which will take place next Tuesday, the goods comprising Hard-ware, Edge Tools and Tinned Ware On the day following, Wednesday, September 19, by order of the Lalance & Grosjean Mfg. Company, there will be a large special and unreaerved sale of Crystal Steel Enameled Ware and Blue and White Ware. This will be, as the announcement reads, the first sale ever made of Crystal Steel Enameled Ware

and will therefore be worth the attention of the trade. Further particulars will be found in the announcement.

CO	N	Т	EN	Т	S.

CONTENTS.	
Editorials: PAG	P
Air Veloc tv	55
Anemometer M as rements	55
Franklin Institute Drawing School	55
The Letter Box—	
Making a Finial	56
Weight of Copper for Cormees, Tilus	7,8%
Where Does the Gas Come From V	56
Automatic Gasoline Soldering Iron. 141.	57
Non-Firing-Back Gas Burners	57
An Iron-leal Talk	57
Tin Plates—	
New Tin Plate Works at Middletown,	
Ind	58
Record Tin Plate Cleaning Machine.	
Illustrated	58
Serap	59
Steam and Hot Water-	
Heating Philadelphia County Prison.	
Illustrated	€0
A New "American" Radiator. Illus	33
Heating Notes	63
Plumbing and Gas Fitting-	
Union County, N. J., Master Plumbers.	64
Brackets for Plumbers. Illustrated	64
Rowe's Automatic Hot Soda Appa-	
ratus. Illustrated	64
Gas and Gas Fitting.—VIII. Illus	65
Vanderman's Water Closet Connectors.	
	66
Illustrated	66
Traps and Vents	67
Stove Pipe or Leader Outfit, Illustrated.	
Bertsch's Combined Punch and Shear.	
Illustrated	
Heating and Plumbing-New Work and	
Contracts  The Perfection Drum. Illustrated	
Stove Trade Notes—	
Hon. Amos C. Barstow. Portrait	69
The Ohio Stove Trade	69
Philadelphia Stove Trade	
The Home Stove Company	
The Grander Stove Company Odd Plates	
Odd Plates	
Flashiugs	
Trade Report-	
The Iron Market	
Metal Market	
Chicago Report	
Condition of the Hardware Trade	
Notes on Prices	
Labor Exchange-	
Help Wanted	78
Situations Wanted	. 78

#### Metal and Miscellaneous Prices.

#### CHICAGO, SEPTEMBER 13.

Tin- Straits pigs 1846	11
Imported Tin Plates— Uharcoal Plates.—Bright.	1
Guaranteed Plates command special stices, according to quality.	ļ
Porhov	1
[ C 14 X 20,	١,
Oalland and ) IX, 10 x 14	1
11 20	E
(DX, 12% x 17	1
Allaway Grade, IC, 12 x 12	8
IC 20 x 28	
Ooke Plates—Bright.	F
IC 14x90 00 % @ 5 98	F
IC, 14 x20, 100 b	I
10 x 20	j
Charcoal Plates.—Terne.	J
Ouaranteed Plates command special prices, according to quality.  Eansel and Dean Grades.—	ı
	E
20 x 28	J
Worcester Brand and equal.—  IC. 14 x 20 6.00 &  IC. 20 x 2812 00 @	8
IC, 20 x 28, 12 00 @ IX, 14 x 20, 7.50 @ 20 x 28, 15,00 @	8
Tin Boiler Plates.  Per box of Per box of	8
100 shaets. 112 sbeets.	8 N
XX. 14 x 28 14.50 14.50 X, 14 x 31 14.50 15.80	,
XX, 14 x 81 16.50 17.50 Per box of 56 sheets.	T
X.14 T AR 90 KA 18 KA 1	T
XX, 14 x 56	Т
American Tin Plates.	T
Charcoal Plates.—Bright.	C
1C, 10 x 14, 12 x 12, 14 x 20\$6.50 IX, 10 x 14, 12 x 12, 14 x 20 8.25	M
	K
IC, 10 x 14, 12 x 12, 14 x 20. \$6 75 IX, 10 x 14, 12 x 12, 14 x 20. \$75 Rach extra cross \$2.00 and 20 x 28	G
Kach extra cross \$2.00 and 20 x 28 double these prices. Brilliant, Tissue Pseked, IC, 14 x 20, \$9.25. Berjai, extra. IC, 14 x 20. 7.25. Eerion, IO, 14 x 20. 7.00. Mint, IC, 14 x 20. 6.50. Mint, IC, 14 x 20. 8.50.	M
Eerion, IO, 14 x 20	
Conc I sates.—Bright,	0
Elwood.—IC, 14 x 20	

0101.00, 02	
Irondale A A :   IC, 40 x 14, 12 x 12, 14 x 20 \$7     Each extra cross \$1, 50.	()1, T
I trondule X:	85
Fach extra cross \$1.10.	3
IC, 10 x 14, 12 x 12, 14 x 20   863   Each extra cross \$1 10.	- 1
Fach extra cross \$1.00	
Palm, IC, 20 x 28	00 50 N
Empire, IC, 20 x 28	30 30
1X, 20 x 28	20
Alaska IX, 20 x 28	25   9
Special, IC, 20 x 28	5 F
Westmoreland:	"   C
IC, 14 x 20. Fd. (1C, 20 x 28. 12 (	10 1 .1
1C. 20 x 28 \$11.5	io
Kenwood: IC, 20 x 28	
IC, 20 x 28	нэ
Fronda e E, IC, II x 20. 5.3	(I) o (I) g
Each extra cross \$1,10. Juno:	
Each extra cross \$1,10,   Juno;   1C, 14 x 26	5 8
Illinois, Old Method : 1C, 20 x 28 \$17.0	10 a
E. L.: 1C, 20 x 28. \$12.50 Jessle:	no.
1C. 20 x 28.   \$12.50     Jussie:	0 3
Resquared, IC. 14 x 20 x9 5	٥
Scott's Extra Coated, Stamped and Resourced IV 14 x 20	O P
Scott's Extra Coated, Stamped and	o P
Scott's Extra Conted, Stamped and	
Resquared, IX, 20 x 28	0   P
1X, 14 x 20 7.5	0 P
IX, 20 x 2815.0	0   i-i 0   i-i
(Stamped and Resquared)\$9,5	0   131
Taylor's Old Style, IC, 20 x 28 (Stamped and Resonared) 10.0	0 1
" IC, 20 x 28	
Taylor's Roofing, IC, 20 x 28	w
Columbia, IC, 14 x 20 (Stamped)7.2	6
IC, $20 \times 28$ (Stamped)14.54 Maple, IC, $14 \times 20$ (Stamped)6.74	0 60 8 80
" IC, 20 x 28 (Stamped) 13.56 Willow, IC, 14 x 20	Lo
" IC, 20 x 28	0 5 80
1C, 20 x 28	0 Ba
" IC, 20 x 28	o Bi
Stamped and Resquared    19.0	2   2
(Redipped), IC, 20 x 28 17.00	Ď É
IC, 14 x 20 9.00	0
$\begin{array}{c ccccc} IG & 14 \times 20, & 9.0 \\ IG & 14 \times 20, & 9.0 \\ IX, 14 \times 20, & 11.0 \\ IC, 20 \times 28, & 18.0 \\ IX, 20 \times 28, & 22.0 \\ \end{array}$	0   <b>of</b> 0   νε
1X, 20 x 28	ŏ l ti

	A VI D. S. Cold Conde	• •
11	II. B. L., Old Style: 7.75	Antimony-
	1X, 14 x 20 9 25	Cookson
	H. B. L. Old Style   7.75   10. 14 x 20   7.75   11. 14 x 20   9 25   15.50   11. 20 x 28   18.50   18.50   Continuous Roeding Times	Wrought-Iron Pipe-
	Merchant's Tandem per roll, \$3,00	14 and under, Plain
()	Sheet Iron-	14 and under, Galv
ij	· ·	11 and over Galv. 5716
	Blick. Common	Casing, list Nov. 16, 189270&10g
0	Nos. 10 to 16 * B 2 2 10¢ 2 8 10¢	Inserted Joints Casing, Hat Nov. 16,
0	17 to 20 * D 2 3 10¢ 2 9-10¢	1892
Õ.	21 to 24 > D 2 4 10¢ 3 ¢ 25 and 26 > D 2 5 10¢ 8 1 10¢	_
0	Nos. 10 to 16	Cast-Iron Soil Pipe-
5		Cast-Iron Soil-Pipe, Tarred; sizes 2 to 5 inches, inclusive
5	Patent Planished * B A, 1016; B, 916 dia. 65	Other sizesdis 605
	Craig's Polished Sheet Steel.,81/4	Leader Pipes-
9	Juniata or first qualitydis.75@56	Abendroth's Galv. Spiral Riveted 554
0	Copper-	Abendroth's Galv. Spiral Riveted
,	Ingot.	Ritchia's (Galv. Iron only) Cor'd605 Ritchie's Spired Lock Seam, Galv'd655
)	Lake	Ritchle's Spiral Lock Seam, Galv'd658 Austin's Spiral Ribbed Pipe608
0	Sheet and Bolt.	Plain Adjustable Elbows
)	Sheet and Bolt. Discourt on old list except advance on cold rolled polished boller sizes to	only) Corrugated
ì	25¢), 25%.	Furnace Fittings-
	Copper Bottoms. Discount on old list, 25%.	Discount from Excelsior Steel Furnace Co.'s list
3	Seamiess Brass and Copper Tubes,	
) .	Base price, 1716 Chicago, with extras according to size.	Steel Roofing-
1	Copper, Bronze and Gilding Tuba, 3# 🛊	Perfection\$3,25 equare Cilmax\$3,00 equare
ĺ	n additional.  Brazed Brass Tubing. (100 lb lots.)	The Lloyd Spanish Tiling\$1.50 square
)	(To No. 19 inclusive.)	Metailic Shingles-
)	Discount, 40%, Plain, 34 inch up to 2 luch	
,	Plain, % Inch up to % Inch	Cushman's. \$1.75 square Merchant & Co.'s Spanish Tiles: Copper, 14 oh. \$2.75@314.25 cquare Tin. \$8.75@314.25 cquare Stoci, painted \$9.90 square
١	Plain, % inch up to % inch	Tin
1	Plain, 5-16 inch up to % inch 48 !	Stoel, painted
1	Plain, 3-16 inch up to 1/4 inch 1.00	Drain Pipe-Tile.
1	Plain, 2 inch up to 3 inch	Discount from list70\$
1	Plain, 8 meli and largerSpecial	Paints, Olis, &c
Ì	Bronze and Copper 3c advance.	Deodorized Beazine
	24-74 (8-10-0 E-11-0-0-11 (8-0-0-1-0-0-1-)	Brown B. 154
	Discount, 40%.	" Ground in oll, B. Red W h. Ohr
	Siab Speiter— Western Speiter 4¢	" Ground in oil, Red. W b. 8548
1	Sheet Zinc-	Paints, Olls, &C.—  beodorized Beozine
	600 b casks. \$1,75 300 b casks. 4,05 Loose sheets. 5,05	Ground in oil, Purple \$\pi\$, \$\pi\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
١	Loose sheets. 5.05	Orange Mineral Sta
١	Lead-	Pure White Lead in Oil 551@ife
1	Soft Pig Lead	Red Lead, American. 54@de
1	Pipe	Red Venetian, English, dry . \$1.65@\$1.70 Red Venetian in oil; asst'd cans. 84.4.
1	Solution   Solution	kegs
	Solder-	kegs
	% & 111/2@12# Extra Wiping 11#	Asphaltum, Trinidad Refined, * ton \$45 Tarred Felt, 1 Ply, * 100 b. \$1.50 Tarred Felt, 2 Ply, * roll 108 sq.
1	The prices of the many other qualities	Tarred Felt, 2 Ply, F roll 108 sq.
	The prices of the many other qualities of Solder in the market indicated by pri-	Tarred Felt, 3 Ply, Froil of 108 so.
l	vate brands vary according to composition.	feet
		2
		•

25 50	Cookson 126 Hallett's 10%6
50	Wrought-Iron Pipe-
(10,	1¼ and under, Plain. 57% 1¼ and under, Galv 50% 1½ and over, Plain. 27¼ 1½ and over, Plain. 27¼ 51½ and over, Galv. 57½ 580 11er Tobes, list Oct. 24, 1892. 70&10% Caslug, list Nov. 14, 1892. 50½ Inserted Joints Casing, Hat Nov. 18, 1892.
d. 0ø	Boiler Tobes, list Oct. 24, 1892
ė	1892. 4773 Steel Boiler Tubes. 2774 Cold Drawn Seamless Steel Tubing. 301
0ø 0¢	Cast-Iron Soil Pipe-
t.	Cast-Iron Soil-Pipe, Tarred; sizes 2 to 5 inches, inclusive
ée	Leader Pipes-
56	Abendroth's Galv. Spiral Riveted
re to	James A. Miller Bros. (Galv'd Iron only) Corrugated
8.	Furnace Fittings— Discount from Excelsion Steel Furnace Co,'s list
8.8	Steel Roofing-
₩ }	Perfection
'	Metailic Shingles-
35	Cushman'e.       . \$1.75 square         Merchant & Co.'s Spanish Tiles:       . \$36.00 square         Copper, 14 oz.       . \$36.00 square         Tin.       . \$9.756\$14.25 square         Stoei, painted.       . \$9.00 square
35 00	Drain Pipe-Tile.
10 38	Discount from list70\$
1. 1.	Paints, Olis, &c.— Deodorized Benzine

## NEW YORK, SEPTEMBER 14, 1894.

The following quotations are for small lots.

Aluminum-
No. 1 Aluminum (guaranteed over 984
pare), in rolling inents
8mall lots
Tob lots > 2 (0)
No. I Alem num guaranteed to be over
98% pore), to ingots for remelting : Small lots
100-10 lots 2 10 60d
No. 2 grade iguarante d to be over 945
pure Alumioum), cast in invots for re-
melting:
8mall luts.
Ton lots b. 50¢
Antimony-
Uookson b to 10564
Hallett's
Brass-
Planishednet
Roll and Sheet25@30x
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
List April 9, 1894.
Plain Round Tube, Per B. 1 M in. up to 2 in
%-in.upto-41n
beln, up to % in
% in up to % in
M-10.up to 5 14-in
8-16-10.up to 1/16
Smaller than 16 in Special
5 ID. and larger Streets
8 in. to 8 in., to No. 15, inclusive, .28
Copper and Bronze Tubing-

	Conductors-
Co	Trugstad. Round or Source-
Gal	vanized
Tin	vanized, Locked Joints605
1	Spiral Riveted-
	vmnized
S	ee also Elbows and Shoes; Eave-
	Trough Miters; Strainers, Conductor.
	onductor Strainers—See Strainers, Conductor.
C	
Bot	oppor— toms, Pits and Flats19\$ W. D. net
	1/10/01.
Ans	onia Grade Arizona 10 #
0.118	ouls Grade Casting 956#
She	et and Bolt15¢ % m, not, basis
	ubes - See Seamless Brass
Tul	bes.
Ε	ave Troughs-
Lap	or Slip Joint, Galvanised 802 104
Lar	or Slip Joint Terne. 601
E	ave-Trough Mitres-
Lap	or Silp Jointlist, net
E.	lbows-
Tin	Plain Adjustable-
Gal	vanized
	Crimped Tubing-
Re-	Stove-Pipe-
Bud	Alo Four-Piece
434	5 54 6 7 inch
80.7	8 .87 .60 .09 1.20 per dos 90 \$

Elbows and Shoes- Flat Crimp, Tin	Tin Lined Pipe
Corrugated.	Metal, Expanded-
Flat Crimp.	Manufacturers' list No. 5.
### Flat Crimp.  @alvanized	Latbing     10s       Feneing, Pninted Sheets     90s       Natting, Painted Sheets     90s       Door Mats, Galvanized     24s       Window Guards, Paneled     16s       Tree Guards, Paneled     15s
Black, Common R. O. Cleaned	Mitres, Eave-Trough-8es
American. American.	Eave-Trough Mitres.
Nos. 17 to 21 & D. 2.70 3.00#	Paints, Olis &c
Nos. 22 to 24 \$\pi_\$ 2.30 \$1.0\epsilon Nos. 25 \text{ nnd 20. }\epsilon \$\pi_\$ 2.90 \$2.90\end{englished}\$. \$3.20\epsilon Nos. 25 \text{ nnd 20. }\epsilon \$\pi_\$ 3.90\end{englished}\$. \$8.30\epsilon Nos. 28 \$\pi_\$ 3.90\end{englished}\$. \$8.30\epsilon \$\pi_\$ 3.10\end{englished}\$. \$\pi_\$ 3.90\end{englished}\$. \$\pi_\$ 3.90\epsilon \$\pi_\$ 4.0\epsilon \$\pi_\$ 8.0\epsilon \$\pi_\$ 8.	Lead, Amn. White, in oil
Gatvanized.	Putty:
Nos. 10 to 16.	In barrels and 16 bbls

Tin Lined Pipe Block Tin Pipe Sheet Old Lead in exchange, 24/4 ¥ 1
Metal, Expanded-
Manufacturers' list No.
Lathing
Fencing, Painted Sheeta Natting, Painted Sheets
Door Mats, Galvanized
Window Guards, Paneled Tree Guards, Paneled
Mitres, Eave-Troug
Paints, Oils &c
Lead, Amn. White, in oil
Lead, Red, bblz. and 1/4 bbls Lead, Red, kegs
Red Ver tian, American
Linseed Oil:
Raw, # gal
Spirits Turpentiue: In bbis

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, September 22, 1894.

DAVID WILLIAMS, - PUBLISHER

#### BUSINESS OFFICES:

NEW YORK	96-102 Reade Street.
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ROSTON	146 Franklin Street.
PITTSBURGH R	oom 509 Hamilton Building.
CHICAGO, Dea:	rborn Street, cor. Randolph.
CINCINNATI,Poor	ms 22-24 Pickering Building.
ST. LOUISE	ank of Commerce Building.
CLEVELAND	312 The Cuyahoga.

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Volume	X1.11	No.	12.
		Matter Page	

#### Profitable Reading.

Of how many mechanics can it be said that their reading is truly profitable? Of course it is an accepted fact that large numbers exercise such discretion in the choice of that which they read that all must acknowledge them to be better informed for the time thus spent. But nevertheless there is a much larger class to whom the thought of choice in the matter of reading or the deliberate laying aside of poor for good literature does not come. The daily papers, perhaps, interest them first. But for what? For real and valuable information, or for the extended reports of prize fights and crimes, gossip and sporting news? The average daily paper of to-day is far from the perfect news vender it should be, but notwithstanding, even the poorest contains much of value to the reader if he will but seek it, while the editorials of some of the best are masterpieces in their way and present clearly, even if not impartially, extended criticism upon the most important events of the times. Such reading is profitable. It builds up the man, gives him thoughts above himself and raises him from his every day life to that of great men and thoughtful writers.

#### Trade Papers and Books.

The mechanic who does not take a paper devoted to the interests of his own trade and read it thoughfully falls far short of profiting by all his opportunities. Such a paper puts him in touch with other men of like tastes, gives him a chance to compare their methods with his; in fact, makes him more independent of his immediate surroundings and fits him for a larger sphere of usefulness. It is thus that some bright young mechanics climb so rapidly above their fellow men perhaps of twice or thrice the direct experience and assume greater responsibilities. Beyond the time spent in read-

ing the daily and the trade papers. every mechanic may, if he will, still find a few moments each day to devote to either interesting or instructive literature. A boy who was brought up on dime novels cannot in a day learn to enjoy Scott or Dickens, but there is nevertheless an ample store of good fiction, intensely interesting, and, in many instances, decidedly instructive. History is told in such pleasing manner by many of our able writers that one bardly appreciates what he is reading, while the simplicity of some of our greatest scientists has enabled them to lay before us in intelligible language a large store of the most valuable scientific knowledge. The practical universality of the modern free public library removes all excuse for not reading because of nothing to read. and to-day, merely for the asking, the mechanic may freely enjoy such books as his father never thought of reading, because he could not afford to purchase

#### Lectures on Sanitary Plumbing.

Among the evening educational classes conducted in the Young Men's Institute, 222 Bowery, New York City, to which reference is made in another column, is a class in sanitary plumbing-a new and interesting feature of the good work of the institute which deserves to be more widely known. In this class the theory of sanitary plumbing is carefully taught, by means of lectures by Prof. James Tennant, as well as the principles of natural philosophy bearing thereon. The latest improvements in fixtures, traps, boilers, pipings and testing of soil pipes are thoroughly explained, the lectures being illustrated by charts, drawings and lantern views. The class is open to any young man between 17 and 35 years of age, giving satisfactory references as to character, who will join the institute and pay the class fee, amounting to 50 cents a month. At the end of each term examinations are held and certificates of progress are awarded. Diplomas of graduation are given at the end of the year to those who have satisfactorily completed their studies, while valuable prizes are bestowed on those who show the greatest proficiency. The school year commences in October and ends in May, giving an eight months' course, the sessions being held twice a week, on Wednesdays and Fridays, from 7.30 to 9.30 p.m. The value of this character of theoretical instruction to young plumbers who are already gaining a knowledge of the practical side of their craft in the course of their daily work is obvious. For the small sum of \$4 a fund of information can be obtained by an earnest pupil which

will be invaluable to him in his trade. Moreover, he can also attend the drawing classes, or take up any of the other subjects treated, such as electricity, arithmetic, bookkeeping, &c., for a small additional payment.

#### A Perplexing Problem.

One of the vital questions affecting the comfort and physical wellbeing of dwellers in great cities, and one that is only second in importance to the provision of an adequate and wholesome water supply and an effective sewerage system, is that of the disposal of city garbage. Rapidly swelling, as are the populations of the leading cities of the United States, the need of an economical, effective and sanitary method of either destroying or utilizing the masses of refuse which accumulate in them becomes daily more urgent. In no city is the solution of this problem' more emphatically needed than in New York, A committee of the city authorities has been investigating the subject for some months, but apparently without success in reaching any satisfactory conclusion. Hitherto New York City has followed the deplorable practice of dumping her garbage into the sea, a proceeding which, in addition to the danger of obstructing the navigable channels in the harbor, is particularly offensive, in that a large part of the more or less buoyant refuse is carried by the tide onto the surrounding beaches, where a considerable proportion of the city's dwellers resort for health and recreation in the warm months of the year. The urgent need of a better system of garbage disposal is admitted by every one, but the question of how to effect the improvement is not easy of decision. Cremation is the best plan hitherto adopted both in this country and in Europe, but, for an immense city like New York, the crematory systems as at present used in other places have many disadvantages. They are expensive, slow and inadequate, and they fail to provide for the disposition of a large proportion of the garbage of the city which is not readily destructible by fire. A fortune awaits the inventor who can solve this perplexing problem satisfactorily on original lines.

Goesip in the metal trade has it that Strausa, the great Tin king, is actively opposing the clique which is trying to corner Tin. The arch manipulator now is one Rickard, who is backed by an influential firm. It is variously estimated that the clique have already accumulated from 7000 to 13,000 tons of Tin. Little confidence is expressed in the success of the movement. It is stated that this country is singled out for the dubious distinction of having the metal unloaded on it. It is easy to buy and run up the price, but the selling at a profit is quite another matter.

# THE LETTER BOX.

#### Coal and Steam.

From G. W. W., Provincetown, Mass.—Please inform me through The Metal Worker how much steam 1 pound of water will make, and how much coal it will take to turn the water into steam?

Answer .- We presume our correspondent wants to know how many cubic feet a pound of water will make, but in that case he should have stated under what pressure it is to be measured. At atmospheric pressure 1 pound of water evaporated into steam will fill 26.36 cubic feet; at 50 pounds pressure the same weight of steam will fiil 8 38 cubic feet, while at 100 pounds pressure a pound of steam fills 4.33 cubic feet. The amount of coal necessary to turn the water into steam will depend upon the quality of the coal and the kind of boiler. Theoretically, the best anthracite coal will evaporate 15 pounds of water; practically 10 pounds is a very good result. Of course, it is understood when evaporation is spoken of that the steam is made at the atmospheric pressure. To produce 50 or 100 pounds pressure, as the case might be, would require more coal to the pound of steam.

#### Galvanizing Dross.

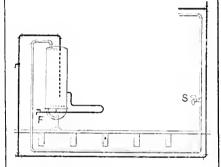
From M. M. Company, London, Ont.—We were interested in an article published in The Metal Worker of September 8, in regard to galvanizing dross. We should be glad if you would kindly advise us what degree of heat is necessary to treat the dross to secure the result stated—that is, the separation of the zinc from the impurities. Could this be accomplished in an ordinary iron potash kettle? When the dross is melted what would be the best method of separating the material? Would it be better to dip out the top product, or take the dross from the bottom, the same as in the original drossing of the galvanizing kettle? This latter treatment would, we presume, after removing the dross, leave the residue as more or less pure zinc.

Answer. -The degree of heat required in separating zinc from dross should be sufficient to allow the zinc to rise to the surface of the mass. When removing the dress from the galvanizing kettle by means of the perforated iron skimmer, care should be taken to allow much of the free zinc to drain off, which can be done by shaking the dross in the skimmer over the melted zinc. An ordinary iron potash kettle, if of sufficient size and thickness, will answer for melting the metal. After the dross has been melted it should be allowed to stand for some time, being kept in a melted state, thus allowing the heavy part to settle to the bottom. If there is danger that the

dross will be taken out with the zinc, the skimmer can be placed on top of the metal, thus pressing down the dross and allowing the melted zinc to flow through the openings in the skimmer, when it can be dipped out by means of a ladle. After removing all free zinc possible by the above method, the dross can be taken out by means of the perforated iron skimmer, thus giving any zinc that may remain an opportunity to drain off.

#### Faulty Boiler Connections.

From OLIVER TWIST.—The system of piping shown in Fig. 1 has a number of faults which might have been



Faulty Boiler Connections.—Fig. 1.— Showing Usual Method of Piping.

avoided. A man was sent to repair a part of this apparatus the other day, and, of course, the first thing he had to do was to empty the boiler. It is evident that the plumber who put the faucet at the bottom of the boiler, as shown in the sketch, intended it to be used for that purpose. After opening

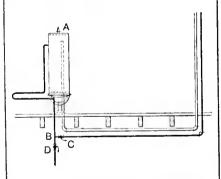


Fig. 2.—Showing Boiler Upside Down.

the faucets in the bathroom and at the sink, as there was no vacuum valve to admit air, the water refused to run out, and an examination showed the trap in the basement which caused the trouble. As there was no way of draining the pipes in the basement they remained full as far up as the faucet at the kitchen sink, preventing the entrance of air to the boller. There were no unions at the top of the boiler which could be loosened to accomplish the

same purpose. The pipes between the water back and the boiler happened to be of iron, so the plumber took the easiest way out of the difficulty by loosening a union on the upper pipe, and opening the faucet at F the boiler was thus emptied. The idea of omitting the vacuum valve, and not connecting the boiler with a sediment cock and blow off, as it should be, was to avoid expense. This is not true economy, however, as it occasions much extra work in the future, to the sorrow of the owner. If people must have the pipes run under the basement floor rather than under the kitchen ceiling, the following plan could be adopted:
The ordinary range boiler in this country by head and the state of the s try has two holes in the top, one in the side and one in the bottom, as in Fig. 1. Turn the boiler upside down, as in Fig. 2, and place a vacuum valve at A, and run a small pipe from it to the kitchen sink; run the upper pipe from the water back into the side of the boiler, which will now be near the top. The hot water supply for the bathroom is run up within the boiler, as shown, and the cold water is connected to the bottom, with a tee leading to the water back. By leaving a tee at B in the basement this pipe may be used as a blow off by closing the cock C and opening the cock D to sink in the basement. If there is no sink in the basement it may be safely run into the cesspool in the basement floor. This is the writer's own method, and he has never seen it elsewhere. It has these advantages-it takes less pipe, the water circulates better and the job presents a better appearance.

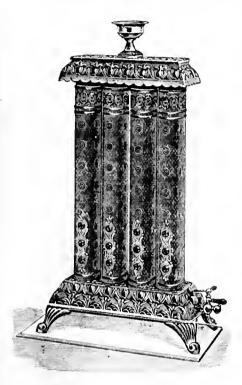
#### Wants One for His Tinshop.

From Bachelon, New Jersey.—Having read the letter of "Father" in The Metal Worker of September 8, I am greatly interested, for I am on the bachelor list and a tinsmith of 20 years' standing. I started out when I was about 16 years old and have been through the mill, as the saying goes. I have been thinking it would indeed be a joy to have a wife like one of "Father's" daughters. I wonder if they are all married or keeping company. I would like to hear from "Father" in regard to his daughters. His letter is very entertaining.

Note.-We have preserved the full address of this correspondent, and if "Father" finds this letter as entertaining as his has been we will endeavor to inspire this bashful bachelor with courage to meet him, though match making is not one of the functions of The Metal Worker. It is an old saying that it is better late than never, and sympathy will be felt for "Bachelor," who at last has seen the error of his way. He makes some confession as to age and experience that may or may not be of advantage in the eyes of the daughters and tend to influence his future either for bliss or for benighted bachelorhood.

#### Fire King Gas Radiators.

A. Weiskittel & Son of Baltimore, Md., have just added to their already extensive assortment of gas burning appliances some new designs of radiators, illustrations of two styles of which are shown in the accompanying engravings. In connection with these goods particular attention is called to the fact that all cast iron parts are heavily brass plated, and that each column or tube is set with three cut jewels of different colors. The cocks are supplied with



Fire King Gas Radiators.—Fig. 1.— Radiator with Embossed Russia Iron Flues.

pilot light and a damper, so that all burners light simultaneously. Upon the top of each radiator is an urn containing a bowl for holding water. Another feature in connection with the radiators is the embossed Russia iron tubes, which add to the attractiveness of the The radiators are made in four design. sizes, having four and six columns or tubes in single row and four and six columns in double row. All sizes are made with and without the open work casing shown in the cuts. The manufacturers refer to an incased gas radiator as something entirely new and original, and that this style of treatment adds much to the finish of the goods, making them closely resemble steam or hot water radiators which are used in the finest apartments. We understand that the salesmen of Messrs. Weiskittel & Son are now out on the road taking orders, each traveler being supplied with an aluminum sample of the radi-

We have received the new catalogue of the Pratt Institute, Brooklyn, N. Y., for the season 1894-95. The growth of the work in this important educational institution is illustrated by the enlargement of the present catalogue to 122 pages. The trade school matter exhibits no important change. The various trade classes will commence their six months course on Monday, September 24, and we are informed that the applications for instruction in

plumbing, painting and carpentry are more numerous than ever before. Sixty-eight applications for the plumbing class alone have already been received, and more will certainly come in before the opening of the session. The class room has, however, accommodation for only about 50 students.

#### A Telescoped Cupota.

An accident that happens not very often to foundrymen occurred recently at the works of the Radford Pipe & Foundry Company at Radford, Va .namely, the telescoping of one of their large cupolas. Perhaps owing to faulty construction, this cupola spread at the charging door section, allowing the stack to drop something like 5 feet. The problem then was, how to restore the cupola to its original position without accident and without removing the lining and taking the capola down section by section. This was expeditiously accomplished by first lashing the cupola at the top to the main building of the plpe foundry; then large cast iron shoes were bolted to the shell just above the roof of the cupols house, and these in turn were bolted to long timbers 12 x 12, which were securely blocked and wedged into position as the cupola was straightened back into place by the use of chains and turnbuckles. As soon as in position the under sections were taken away, leaving the stack in mid-air securely lashed to the building and supported by timbers and castings just described. The roof of the cupols

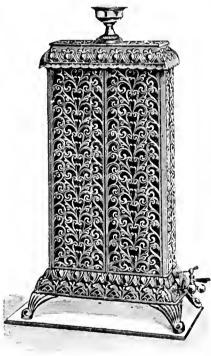


Fig. 2.—Radiator with Open Work Casing.

house was strengthened in the mean time by heavy timbers running from the ground to the cupola loft and thence underneath the roof. As the lower part of the old cupola was somewhat worn, and a new one of larger size desired, a new 96-inch Whiting cupola was erected in place of the old, and joined to the stack which had been held in place. The employees having the job in charge were very much pleased and gratified at the successful completion of the rather delicate work they had undertaken.

Young Men's Institute, New York.

There will be special exercises at the Young Men's Institute, 222 Bowery, New York City, on Tuesday, October 2, to formally open the educational department of the work. The exercises will consist of music and short addresses in the large hall of the institute, and all the class rooms will be open for the inspection of the visitors.

An excellent educational work is being done by the institute each year. Instruction is given in the following subjects: Steam engineering, practical subjects: Steam engineering, practical electricity, sanitary plumbing, carriage drafting, mechanical drawing, architectural drawing, freehand drawing, arithmetic, bookkeeping, penmanship, shorthand, typewriting, Euglish grammar and composition, vocal music and glee club, and first aid to the injured. The classes are open to all young men between the ages of 17 and 35 years. A distinctive feature of the educational work is that the theory is taught to those who are getting the practical part of the subject in their daily work. Firemen are taught all the theory necessary for becoming engineers; engineers are prepared to take charge of higher grade engines; machinists are taught the mechanical drawing which they need in their work; young men in offices are taught the commercial subjects. In this way the efliciency and commercial value of each student is increased to his present employer.

The enrollment for the season of 1893-94 was 425 young men. The quality of work done has shown a decided improvement each year. The school year continues until May, when diplomas and prizes are awarded by the Committee of Management. Admission is free to the opening exercises on October 2, and all persons interested are invited to attend.

The next meeting of the Western Foundrymen's Association, will, upon the invitation of Pickands, Brown & Co. on behalf of the Illinois Steel Company, be held on Wednesday, September 26, in the afternoon, at the South Chicago works of the Illinois Steel Company. The members and their guests will take the 2 p.m. train on the Illinois Central from the Randolph street station, and in order that all may be provided with tickets, it is especially requested that those who go upon this expedition meet in the men's waiting room of the station at 1.30 p.m. The afternoon will be spent in inspecting the blast furnaces and mills of the Illinois

Steel Company, and the members will return from South Chicago in time to attend a dinner which will be held at the Palmer House at 7 p. m. After dinner a short business meeting will be held, at which E. C. Potter will read a very Interesting paper on "The Biast Furnace." There will be no expense attending the trip to South Chicago, as Pickanda, Brown & Co. have very kindly offered to provide transportation for the members of the association and their guests. The expense of the dinner, however, will be met by the payment of \$1.50 by each one that attends. All foundrymen, whether members of the association or not, are cordially invited to go on this trip to South Chicago, and to the dinner afterward. It is absolutely necessary, however, that those who intend being present, either on the trip or at the dinner, should so notly the secretary by September 22, in order that tickets and

accommodations may be provided.

# ROOFING AND CORNICE.

#### Pediment Chart.

BY W. N.

I send herewith for the benefit of the cornice maker the accompanying diagrams and descriptions, showing my method of laying ont pediments of any size, without going to the trouble of drawing full size details. They also show my method of laying out pediments of different lengths, having the same rake and profile, using but one pattern, as indicated in Fig. 2, and the pediment chart shown in Fig. 3. Re-

feet 1½ inches; deduct the 2 feet 1½ inches from the 7 feet before obtained, and there remains 4 feet 10½ inches, which is the distance between the brackets for the two ends of the cornice, as shown. For the two center spaces, and the one half of the second pier, which is 1 foot 6 inches, the width of the window opening, which is 3 feet, and one-half of the center pier, which is 1 foot 6 inches, the total of which amounts to 6 feet. Now add one half of the second bracket, which is 4½ inches, the one-half of the center bracket, which is 4½ inches, and

Pediment Chart.-Fig. 1.-Front Elevation of Cornice.

ferring to the diagrams, let Fig. 1 represent a front elevation of a cornice drawn to a scale of \(\frac{1}{2}\) inch to the foot, the hight of the cornice being 4 feet, and including the pediment 6 feet 8 inches. There is also shown in Fig. 1 the measurements of the brick piers and window openings, besides the brackets spaced to set over the brick piers, the correct lengths of the pediment and crown moldings returns being given. In this connection it may not be out of place to show how the divisions between the brackets and the lengths of the pediment and crown moldings are determined.

As shown in Fig. 1, the width of the window openings is 3 feet, the end piers 2 feet 6 inches and the middle piers 3 feet, thus making the total width of the building 26 feet. The width of each of the brackets is 9 inches, and the projection of the cap and crown moldings over the sides of the end brackets on each side is 12 inches.

As shown on the elevation, Flg. 1, the three center brackets are to set over the center of the brick piers, and the two end brackets are to set 12 inches from the line of the wall on each side.

from the line of the wall on each side.

To figure these divisions proceed as follows: Referring to Flg. 1, add the width of the end pier, 2 feet 6 inches, the width of the window opening, 3 feet, and one half of the second brick pier, which is t foot 6 inches, the total of which amounts to 7 feet. Now add the distance that the end bracket sets from the wall line, which is 12 inches, the width of the bracket, 9 inches, and one half width of the second bracket, which is 4½ inches, and amounts to 2

amounts to 9 inches; deduct the 9 inches from the 6 feet before obtained, and there remains 5 feet 3 inches, which is the length for the two divisions in the center of the cornice, as shown.

should come plumb over the outside line of the two brackets, as shown by the dotted lines in Fig. 1. Now, by adding the widths of the three center brackets, which amount to 2 feet 3 inches, and the two center divisions. which amount to 10 feet 6 inches, we will have 12 feet 9 inches, which gives the length of the pediment from intersection to intersection, shown by the dotted lines in Fig. 1. For the length of the two end crown moldings add the end space, 4 feet 10½ inches, the width of the bracket, 9 inches, and the space of 12 inches, the total of which amounts to 6 feet  $7\frac{1}{2}$  inches, as shown.

Now, if these lengths have been correctly figured the amount should be 26 feet. The panels are usually given 3 inches margin from the side of the brackets; then is each panel 6 inches shorter than the spaces shown between the brackets; the modillions are easily spaced after the brackets are in position. To illustrate the use of the pediment chart shown in Fig. 3, let us suppose that Fig. 1 is an architect's drawing, from which we shall draw our full size detail, omitting the full size detail of the pediment and using instead the pediment chart, which is drawn to one-third full size, the chart being drawn full size in practice.

size detail, omitting the full size detail of the pediment and using instead the pediment chart, which is drawn to one-third full size, the chart being drawn full size in practice.

First obtain the bevel of the pediment shown in Fig. 1, as shown by A in Fig. 2, and make the base or horizontal line J L in Fig. 2 12 inches; draw the bevel or slant line J I indefinitely until it intersects the perpendicular line I L, drawn at right angles to J L, as shown. The diagram in Fig. 2 is drawn to a scale of \(\frac{1}{2}\) inch to the foot, and shows the hight of the penpendicular line I L to be 5 inches, or in other

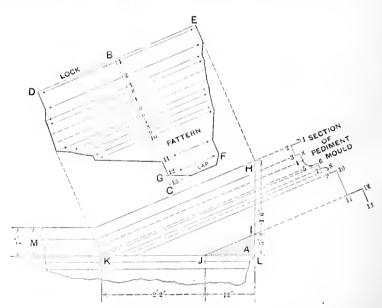


Fig. 2.-Enlarged View of Part of Pediment.

If these divisions are figured correctly, the total should amount to 26 fect. Now, to obtain the lengths of the pedlment and crown moldings, proceed as follows: Referring to Fig 2, note the intersection K. This intersection K

words, that the one-half pediment shown in Fig. 1 has a rise of 5 inches to every 12 inches of base. Fig. 3 represents the pediment chart and is an enlarged view of the triangle A in Fig. 2, and shows how the base line J L in Fig.

2 should be divided into quarters, halves and inches. In practice it is not necessary to draw an extra chart, as shown in Fig. 3, but make the divisions of inches direct upon the chart, as indicated by A in Fig. 2. The bevel I J L in Fig. 2 being correct, the pattern for the pediment is obtained direct from this bevel in the usual manner, as shown in Fig. 2, and needs no further explanation. In this case the hight of the miter cut H I in Fig. 2 will be 1 foot 6 inches, and the length of the miter cut on the horizontal line K J will be 2

the miter cut II I in Fig. 2 is 1 foot 6 inches, the total of which amounts to 3 feet 3 inches; deduct the 7 inches, being the amount of the molding M in Fig. 2, and we have 2 feet 8 inches as required for the entire hight of the pediment as shown in Fig. 1. By sav-

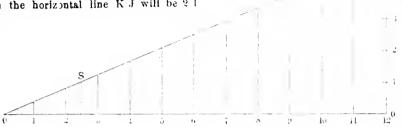


Fig. 3.-Pediment Chart.

feet 2 inches. Having obtained these measurements in practice, we are now ready to figure out the backgrounds and pediment moldings of any length pediment having the same rake and profile without making any further details, but simply using the chart shown in Fig. 3 and the pattern shown in Fig. 2. The chart, as before explained, should be at A in Fig. 2. Thus, to obtain the sizes of background and moldings for the pediment shown in Fig. 1, with but 12 inches of detail, proceed as follows: The length of the pediment in Fig. 1 from intersection to intersection is 12 feet 9 inches; the miter cut on the horizontal line from intersection K to J in Fig. 2 is 2 feet 2 inches; twice 2 feet 2 inches is 4 feet 4 inches. Deducting 4 feet 4 inches from 12 feet 9 inches leaves 8 feet 5 inches. One-half of 8 feet 5 inches equals 4 feet 2\frac{1}{2} inches, as shown in Fig. 4, and gives the length of one-half of the base of background. The rise of one-half of the pediment is 5 inches to the foot, as shown on the chart in Fig. 3. If 1 foot rises 5 inches, 4 feet will rise 20 inches, and 2\frac{1}{2} inches will rise as much as is shown in Fig. 3 where the dotted line intersects the hypotenuse at S, which is 1\frac{1}{2}\frac{1}{4} inches (in practice the \frac{1}{2}\frac{1}{4} inches (in

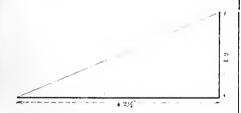


Fig. 4.-One-Half of Melal Background.

the base, as shown in Fig. 4. Then will Fig. 4 represent one half of the background of a pediment having the length and bevel shown in Fig. 1. For the length and miter cuts of the pediment moidings use the pattern shown in Fig. 2, and measuring on the line G F make G F in length equal to the slant line or hypotenuse of the background shown in Fig 4, making similar miter cuts at each end of the moiding, as shown on pattern in Fig. 2.

The hight of the background in Fig. 4 is 1 foot 9 inches, and the hight of

ing for future use the pattern and chart, any length pediment can be quickly laid out; and if a different design of cornice is used, the same pediment can be employed. By using the same rake, the bevel on the ornaments shown in Fig. 1 need not be changed. For example, if the length of the pediment was 16 feet 4 inches, instead of 12 feet 9 inches, as shown in Fig. 1, we would deduct

in Fig. 3, we recently made a cornice similar to Fig. 1, having a pediment 22 feet 4 inches in length, and having a rise of 4½ inches to the foot. To draw to full size one-half of this length pediment, so as to get the correct dimensions of the background, it would have required 11 feet 2 inches of space or drawing paper; whereas as shown in Fig. 3 a triangle only was required 12 inches in length, having the correct bevel, from which the pattern, base and rise of the pediment background was obtained as before explained, and from the hypotenuse or slant line of the background the length of the pediment molding was obtained.

#### FLASHINGS.

THE SYKES STERL ROOFING COMPANY, 611 South Morgan street, Chicago, have secured the contract for furnishing curved corrugated sheets to be used in fire proofing the new warehouse of Felix & Marston, now being erected in that city. The building is erected with 8-inch steel beams to support the floors, placed 42 inches apart. Curved corrugated sheets are sprung across these spaces, their ends resting on the lower flanges of the beams. The curve of the sheets is 9 inches deep. A depth of 5 inches of concrete is to be spread over the tops of the sheets and beams to form the floor. The roof will be formed in the same manner. The magnitude of the building can be esti-

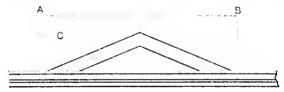


Fig. 5.—Pediment on a Horizontal Molding.

twice the length of K J in Fig. 2, which is 4 feet 4 inches, from 16 feet 4 inches, which leaves 12 feet or the base length of the background. One half of 12 feet equals 6 feet; 1 foot rising 5 inches, 6 feet would rise 30 inches, or 22 feet 6 inches, or the center hight of the background. The length of the moldings would be obtained from the hypotenuse or slant line of the background, using the pattern and mitter cuts shown in Fig. 2, measuring on the line G F for the length of the moldings. After once having the chart and patterns the measurements are quickly obtained.

It may be required to know what the hight of a pediment of this length would be above the top of the crown molding of a cornice. This is very simple. The center of the background rises 2 feet 6 inches, as before explained, and the miter cut H I in Fig. 2 is 1 foot 6 inches, making the total hight 4 feet; deduct the 7 inches, being the hight of the molding M in Fig. 2, which leaves the hight of the pediment 3 feet 5 inches from the top of the crown molding to the apex. In Fig. 1 a pediment is shown which intersects with the horizontal crown molding, while in Fig. 5 is shown a pediment entirely above a horizontal molding. The chart shown in Fig. 3 is applicable for both forms of pediment, it only being necessary to know the length of A B in Fig. 5, and from this length to deduct twice the width of the miter cut C on the horizontal molding, following the rules as before explained.

To illustrate the time and labor saved by using the pediment chart, as shown mated from the fact that 3 tons of sheets will be required to fill the order. The building will be absolutely fire proof, containing no wood work whatever.

IN A HANDSOME souvenir edition of the Mountjoy (Pa.) Herald recently issued, among other prominent business men of the town, H. K. Nissley, roofing contractor, is mentioned in a two-column article. Illustrations are also given of his punching and cutting machine for roofing slate, by which, it is claimed, many kinds of work can be done ten times faster than by hand and much more efficiently.

C. W. CLARK & SON, New Haven, Conn., have secured the contract for putting the slate roof on the new round house of the Consolidated road, or more properly speaking, the New York, New Haven & Hartford Railroad.

Efforts are being made to enlist public sympathy in support of the proposed ship causi from the Georgian Bay, an arm of Lake Huron, to Lake Oatario. Last week several gentlemen from Toronto delivered addresses at Chicago before members of the Chicago Board of Trade, the Produce Exchange and the Lumbermen's Association, setting forth the advantages accruing to lake commerce from the construction of this canal, which would shorten by 300 miles the water route between Chicago and Toronto. The proposed canal is to be constructed for vessels drawing 20 feet, and is estimated to cost \$40,000,000. It would avoid the long route through the St. Clair and Detroit rivers, Lake Erie and the Welland Canal.

# PLUMBING and GAS FITTING.

# Gas and Gas Fitting.—

BY J. W. HUGHES.

#### Economical Gas Burning.

In concluding the series of articles on gas fitting, it will be in order to give gas htting, it will be in order to give a few general hints on the principles governing the burning of gas for illuminating purposes, in order to obtain the greatest amount of light with the smallest possible consumption. There are six general principles covering this important part of the question that should be thoroughly understood by

the gas fitter:

1. The pressure at which gas is burned (delivered at the burner).

2. The sizes of pipes and their freedom from obstruction.

3. The sort of burner used in order to obtain the best resulte.

4. The kind of globe or shade used.

The temperature of the gas. The presence of air in the gas.

Regarding the first principle, pressure, gas should not be used under a greater pressure than that required to insure a steady and uniform flow from the burner, just enough to spread the flame and no more. For gas of ordinary quality this should be  $\frac{1}{10}$  inch on a water gauge. Consumption is increased while the light is decreased by using gas at a pressure beyond this. The following table gives the results from an actual test made by "The Refereea," as embodied in their report to the London (England) Board of Trade:

Relation of Gas Pressure and Itlumination.

Pressure at fairner.	Number of feet used per hour.	Huminating power (can- dle).	What illumi- nating power should be.	Loss. Per cent.
4/10 8/10	5 feet. 7.80	16.00 8 67 21.77	25.05 32 00	25 32 50
12/10 17/19 21/10	10.09 11.66 13.33	18 66 17,06	37.31 42.65	50 60
$\frac{21}{10}$	15.00	16.80	48.00	65

The foregoing figures tell their own story. The pressure at the burner is governed, first, by the amount of pressure maintained at the works. Gas companies usually deliver gas at the lowest pressure that will enable them to send the gas to the furthest points covered by their system of mains. It is to their interest to do this, as it lessens their percentage of loss from leaks, which is alwaya large. But this pressure may be higher than it is desirable to use at the burner.

The pressure at the burners may be regulated in several ways: 1. By partially shutting the main cock at the meter. 2. By adjusting the cock at the burner. 3. By fitting an automatic governor at the meter. 4. By using automatic governing burners. The automatic governing burners.

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regulation of pressure by the first and second methods is always unreliable and annoying, as the pressure in the msins is always varying, owing to the constant shutting off and turning on of gas in the neighborhood or even in the house, and cannot be depended on to give anything like satisfactory results. The automatic governor at the meter answera the purpose admirably, but care must be taken in selecting a suit able governor. Many of those in the market, while excellent as regards their governing properties, are thoroughly unreliable in the materials of which they are constructed, and cause annoyance from leakage after being a short time in use. Governors that have the time in use. Governors that have the valve worked by a metallic or glass float, scaled in mercury, are the best, not being liable to get out of order. Very high buildings should be so piped that a governor could be placed on each atory for controling the lights that supply it, as the higher the building the greater the pressure will be at the top, the increase in pressure for hightfor ordi-



Gas and Gas Fitting.—Fig. 28.—Globe with Contracted Openings.

nary illuminating (coal) gas being about one tenth for every 10 feet of additional hight. For domestic purposes it is best to use some form of governor burner that is automatic in its action. There are a number of them in the market, one of which the writer knows to be thoroughly reliable.

The second heading, sizes of pipes and freedom from obstruction, has been treated in previous chapters. The third treated in previous chapters. The third refers to the sort of burner to be used, and it is very essential that a proper burner should be used. The results of a test made some time ago in Birming-ham, England, of over 50 different kinds of burners proved beyond question that the worst burner gave a light equal to 6.44 candles, and the best equal to 20.32 candles—that is, the best burner gave over three times the light of the worst, using exactly the same quantity of gas and under the same conditions. Another common error is the supposition that small burners must of necessity be more economical than larger ones, the object, of course, being to get the largest amount of light at the lowest rate, and it becomes of exceeding importance to use the proper size and kind of burner. The following table of the result of tests made with the latest improved argand burner tells the tale:

tias Consumption and Candle Power. d Candle Fover. Number of enndles (Fight). 2.01 5.47 8.25 12.00 13.77 16.00 Gas per hour.
Feet.
2.1
2.8
3.3
4.0
4.4
5.0

The foregoing shows that the burner using 5 feet of gas per hour is the most | Ground opal.

economical, when the quantity of light derived from the gas consumed is congerived from the gas consumed is considered. It is by no means to be supposed that there is economy in using a 5-foot argand in a place where a 2-foot lava tip would give all the light required, but the principle is what I want the reader to understand. Quoting from an eminent authority.

an eminent authority:
"People feeling the pressure of the times and wishing to economize in their expenses put on small burners, thinking if they reduce the flame they will keep down the gas account. Never were they more mistaken, for instead of decreasing their bills they only decrease their light and normal for the Land their light and pay more for it. Instead of doing that, if they would reduce the number and use larger burners and burn their gas at a low pressure they would accomplish their purpose."

Burners require to be kept clean, and when the flame shoots up several points it indicates that dirt has become lodged in the opening, and unless it is cleaned the amount of light is diminished, while the quantity of gas consumed may remain the same. Rubbing with a brush will sometimes remove obatructions, or it may be necessary to employ a wire. A hair pin answers the purpose admirably for burners having circular openings. For burners having a alit opening a piece of thin cardboard or thick paper may be used in the absence of a complex based in the sence of a regular burner cleaner. A flame rather aluggish in appearance gives the greatest amount of light, as it allows the carbon in the gas, which is the light giving medium, time to come the light giving medium, time to come thoroughly in contact with the blue or heat portion of the flame and be rendered incandescent. A flame that has a very large proportion of dark (blue) in it is a good flame for heat, but a poor flame for light. A first-class heating flame gives little or no light

flame gives little or no light.

Fourth.—The kind of globe or shade used has an important bearing on the light question. The shape, material, color and method of support are each imcolor and method of support are each important factors. The diameter of the bottom opening should never be less than 4 inches. It must be large enough to allow plenty of margin for the free play of air without causing a flicker in the flame and with a full sized opening on the top. The object is to prevent a draft of air being brought in contact on the top. The object is to prevent a draft of air being brought in contact with the flame, which will cause it to flicker and give an unsteady and annoying light. Globes with a large bottom opening and parallel sides, as in Fig. 29, are the best. A very poor style of globe, once very common, is shown in Fig. 28. Massive globe holders or supports must be avoided, as they obstruct the light and free passage of air as weil the light and free passage of air as well as throw shadows. The simple threeas throw shadows. The simple three-pronged wire holder is the best for bot-tom support, as shown in Fig. 29. All globes or shades obstruct the light. The following table is the result of actual tests by an eminent expert:

Loss of Light by Shades.

		Loss of ligh	ıt.
Description of gla	88.	Per cer	nt. .57
Clear glass		2.	.48
Ground glass		52	.83
Double German gro	mud		

These figures show the loss of light horizontally through the globe from the flame and need no comment.

Fifth.—The temperature of the gas also has an important bearing on its light

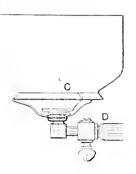


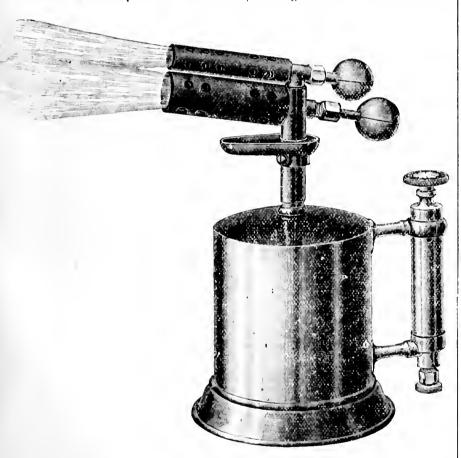
Fig. 29.-Globe with Parallel Sides.

giving properties. When the temperature falls below 60° F, it is injuricu-, proving the necessity of care in selecting warm positions for the different pipes and mains. Experiment has demonThere are many points of interest in connection with the practice of gas fitting that might have been alluded to in the foregoing chapters, but it was not the intention to write an exhaustive scientific treatise on gas and gas fitting, but only to touch upon such points as were likely to be of use to the ordinary gas fitter in the daily practice of his trade. If I have succeeded in helping one weak brother over a rough place I am amply repaid.

(THE END.)

## The Imperial Hot Blast Blow Pipe.

The White Mfg. Company, 40 and 42 State street, Chicago, Ill., have just put on the market a gasoline blow pipe, which is herewith illustrated. The manufacturers offer it as a complete tool for soldering, brazing, burning paint, melting metals, heating soldering coppers, thawing frozen pipes, making heavy soldered joints, &c. It will run for four hours. The burner has a generator of double the usual



Hol Blast Blow Pipe.

strated that a reduction of temperature from 60° to 32° reduces the illuminating power of the gas from 20 to 25 per cent., and when the temperature falls as low as 5° the light is reduced 60 to 70 per cent.

Sixth.—The presence of air in gas reduces its light giving properties very much, proving the necessity of having all pipes and fixtures tight, as the following table shows:

Loss of Light from Air Admixture.

Per cent.	Per cent. of
of air.	loss of tight.
1	6
2	11
4	26
S	67
10	68
15	80
	93

strength, which can be regulated to furnish a flame of any size by a turn of the knob. The needle valve has a patent renewable seat which can be rethe bottom of the pump, conveniently placed, dispensing with outside tubes and fixtures. The pump is very simple, supplying a strong blast and draining every drop of gasoline. The reservoir is tested to 30 pounds pressure and warranted.

## Defective Plumbing in Australia.

The following instances of defective plumbing are given in the annual report of the Sydney Metropolitan Board of Sewerage and Water Supply: The Inapector's notes of inspection of some of the city buildings reveal a state of things hardly creditable. These notes are of interest to show the necessity of careful inspection of places used for residential purposes. In one case, in one of the oldest residential hotels, the following defects were found: Lead traps of water closets with slip joints into lead soil pipe; in another place the branch from soil pipe was partly open; the soil pipe was made of galvanized iron and completely eaten away, and a disused closet was found with the water seal evaporated—this was situated near a bedroom. In a large boarding house a 4-inch east iron soil pipe laid diagonally near bedroom windows, with an opening on top of pipe 18 inches long and 1 inch wide. In a block of buildings where typhoid fever had broken out, the soil pipe was found to be of gal-vanized iron, unventilated, and whole of sanitary fittings in a very bad state. In a large assembly room the soil pipe inside building was found to have open joints. On several eccasions the drain was choked and sewage backed up and leaked through open joints. eases have been found where plumbers have fixed the vent pipe on the house aide of bath trap, and vent pipes from water closets have been carried up and left open between ceiling and roof. The foregoing are only a few of the cases which have been dealt with and clearly show the necessity of proper supervision in this important work.

#### Plumbers' Earth Auger.

The accompanying cut shows an earth auger which Job T. Pugh, Thirty-first and Ludlow streets, Philadelphia is putting on the market. It is designed especially for the use of plumbers in making connections of gss and water pipes with mains and enables them to quickly and easily bore a hole under a pavement, large enough to admit a pipe, without disturbing the pavement. The screw leading to the twist or worm is claimed to be of sufficient size and taper to allow of quick and clean boring with very little labor. The auger is made in sizes running from 2 inch to 4 inch.

IN A RECENT ISSUE of one of the Milwaukee papers appeared an interesting history of the Hoffman & Billings Mfg. Company, who are engaged in



Plumbers' Earth Auger.

placed when worn out at a cost of only 10 cents, making the torch equal to new. The reservoir is made of one piece of specially rolled brass of heavy gauge, rendering it leak proof, and yet the construction is such that the entire apparatus is light. The air valve is at

making Iron and brass goods for plumbers, steam and gas fitters. The article states that the business was founded in 1855 by J. C. Hoffman and was incorporated in 1832, with a capital of \$240,000. Mr. Hoffman dted in January, 1892, and the present officers are:

Fred, Haffman, president; C. H. Katvelage, vice president, and J. B. Kalvelage, secretary and treasurer. The company carry, at their sample room and offices, 111 and 147 West Water street, a complete line of plumbers' goods, belting, packing and supplies for plumbers, steam and gas fitters, &c. Their works are located on Becher street, having side tracks running from the Chicago, Milwaukee & St. Paul and the Chicago & Northwestern railways. A three-story brick structure is utilized as a machine shop, brass finishing works and also for the manufacture of plumbers' goods; a one story brick structure for a pipe foundry, an iron foundry and a brass foundry; a twostory and basement structure for warehouse purposes, and an eight story brick building for pattern storerooms. It is stated that employment is given to 389 skilled workmen and that the sales aggregate fully \$1,000,000 a year.

#### TRAPS AND VENTS.

Dubois & Darrow, 61 Gold street, New York, are showing on their sample floors an aluminum bathtub of the French pattern that is something of a novelty. The tub is made of a single thickness of material, and is supported on ornamented cast iron lega. It is provided with a wood rim, and is arranged for the use of No. 4½ Fuller bath cocks, unless otherwise ordered. The firm have arranged for the Eastern agency with the Aluminum Buthtub Mig. Company, Indianapolis, Ind.

Steele & Johnson Mfo Company, Waterbury, Conn., are making a specialty of brass goods for the plumbing supply trade, such as machine screws, nuts, closet screws, basin bolts, plug rings, jack chains and plumbers' chains. They also make a large line of brass goods for manufacturers of gas and electric light fixtures and metal work for electric switches, sockets, & >.

UNDER THE NEW LAW, which requires all plumbers doing business to be registered, the selectmen of Whitman, Mass., have appointed on the examining board, Andrew R. McCallum and J. C. Gilbert, to act with the chairman of the board of health, Edward Keating.

THE SMITH & ANTHONY COMPANY AND ALBERENE STONE COMPANY, 217 Lake street, Chicago, are to furnish the plumbing specialties for St. Mary's Home, Cincinnati, Ohio.

A VISIT to the showrooms of E. Aspinall, 98 Beekman street, is generally made by plumbers from out of town, the attraction being some imported porcelain bath tube, Mr. Aspinall representing some of the largest sanitary porcelain ware manufacturers on the Continent. One of the tubs is a large roll rim French pattern, white on the inside and a rich chocolate on the outside. It is full size and a very fine specimen. The other is of the Roman pattern, roll rim and white inside and out. A very large porcelain lavatory is another attraction, the slab and bowl being in one piece, the bowl being 18 x 24 inches. It is fitted with secret waste and overflow and soap cups are a part of the slab.

HENRY E. WIEBER of Kingston, N. Y., is about to open a branch plumbing shop at Tannersville.

THE GENESEE AUTOMATIC CLOSET COMPANY have been incorporated to manufacture closets and closet valves in Rochester, N. Y., with a capital of \$10,000. The directors are Daniel H.

Sulltvan, Henry G. Booth, Etizabeth P. Booth and Mary T. Sullivan of Rechester.

P. F. and M. T. Howley have withdrawn from the firm of Howley Bros. and opened a plumbing establishment at 223 Wyoming avenue, Scranton, Pa.

Horace C. Brown is soon to open a store at Billerica, Mass., to carry on business as tinsmith and plumber.

Chas. M. Sauer & Bro. of Chestnut street, Allegheny, Pa., died last week of typhoid fever. Mr. Sauer was 33 years of age and a member of several societies. A wife and four children survive him.

J. J. Wade & Son, 279 Dearborn street, Chicago, have the contract for the plumbing, gas fitting and sewerage in the two residences of Mr. Seamans, Ione place, and residence of Mr. Von Hofstein, Woodlawn avenue.

THE ALUMINUM BATHTUR MOF. COM-PANY, Indiauapolis, Iud., have issued a six-page folder showing the different patterns of their new " bright and noncorrosive bathtubs. Aluminum bronze is used on the lettering of the name of the company and on the cuts showing the interior of the baths, with pleasing Gold bronze is used on the effect. ornamental supports of the tubs. The claims of the merits of the tubs are not less attractively presented, and as a new plumbing fixture it is interesting. One picture shows what is termed the American system. A kitchen boiler arranged so that it can be heated by either gas or gasoline is connected with a pump. so that where there is no water supply from tank or city mains water can be pumped from a well or cistern into the boiler, forcing the hot water into the tub.

Bruno Beck, 2512 Cottage Grove avenue, Chicago, who handles beer pumps and supplies, makes a specialty of the products of the Clevetand Faucet Company, whose new illustrated catalogue he is now distributing to plumbers.

THE PLUMBING DEPARTMENT run by William L. Whipple, at 45, 47, 49 Manton avenue, Providence, R. I., in connection with his house furnishing business, has been increased to nearly double its former capacity. He now employs a force of seven men, and has contracts which will last until spring. Mr. Whipple is an active member of the Providence Association of Master Plumbers, and was three years one of the vice presidents of the National Astion, representing Rhode Island in th body at Deer Park, Md., in 1886, Chicago, 1887, and Boston, 1886. The plumbing in some fine residences and public buildings in his vicinity has been done under his supervision. Mr. been done under his supervision. Whipple is progressive, and has in stock plumbing material such as is recommended by sanitary experts.

AT A RECENT MEETING of the Plumbing Board of Yonkers, N. Y., a certificate of competency was granted to Andrew E. Seiss of Dobba Ferry.

Nash & Van Scov, South Norwalk, Conn., are putting a heater and bathtub in the house recently purchased by Fred. B. Coleman on High street. They are also placing the tin roof on Sarah Larrigan's new building on the Washington street bridge.

J. ALVIN STRUSE has removed his plumbing and gas fitting establishment to 4457 Main street, below Green street, Manayunk, Pa.

WATSON & TOSSELL have been awarded the contract for plumbing a new hose house at Bay City, Mich.

NASH & HAMA, 2216 Michigan avenue, Chicago, have the contract for the plumbing, gas fitting and sewerage in the residence of Geo. A. Seaverns, 2819 Michigan avenue.

To B. H. HILLIAR, the stove dealer and plumber, says the New Haven Record, belongs the credit of being the first person in New London to put in an individual plant for electric lighting. Mr. Hilliar has connected a small dynamo with his engine, and while he obtains power to operate his lathes, &c., he generates enough electricity to produce 35 lights of 16 candle-power each.

GEO. L. BOTTUM, 34 Clark atreet, Chicago, general agent for the John Douglas Company of Cincinnati, is distributing that company's handsome catalogue of the Douglas noiseless tank. The company are also manufacturers of fine hardwood acats, pipe boards, bath and laundry tub rims and all other kinds of plumbers' wood work specialties and brass and nickel plated flush and supply pipes.

R M. Wilson, proprietor of the bathtub factory, Rome, N. Y., has in course of crection an addition 100 x 60 feet, three stories high, and expects to have it completed by December 1. He now employs 115 hands, and in the spring will increase that number to 250 or 300, when he will put on another addition of 75 feet, csrrying the plant to within 10 or 15 feet from the street.

WM. BOWDEN, 238 Twenty-fifth street, Chicago, has the contract for the plumbing, gas fitting and sewerage in the store and flat building corner of Wentworth avenue and Twenty-sixth street.

BENJAMIN F. SHAW, 315 Orange street, Wilmington, Del., has completed negotiations for the purchase of the Springer, Morley & Gause property, 82 x 86 feet, at the northwest corner of Third and Orange streets. He intends to put up a three-story building on part of the property, placing a French roof on the Third street end. A pipe shop 25 feet in the clear is to be erected on Orange street. He will continue to occupy his present quarters as office and salesroom.

#### Steel Cylinder Head.

The Cleveland Stamping & Tool Company of Cleveland, Ohio, have just completed a large contract for steel



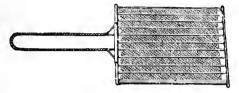
Steel Cylinder Head.

cylinder heads of the peculiar shape shown by the engraving. These heads are drawn from No. 14 gauge metal and are 17 inches in diameter by 14 inches deep.

# THE RETAIL STORE.

Sir Humphrey Davy Toaster | and Broiler.

Silver & Co., 304-310 Hewes street, Brooklyn, N. Y., are manufacturing the Sir Humphrey Davy toaster and broiler, as illustrated in Figs. 1 and 2. The toaster and broiler, made both single and double frame, in two sizes of each, is 4½ x 6 inches and 7½ x 9 inches.



Sir Humphrey Dary Toaster and Broiler. -Fig. 1.-Toaster or Broiler Closed.

On both sides of the frame work and on the outside are sheets of wire gauze held by a frame work of tin and wired at the corners to the broiler proper. The wires are tinned and a loop provided to keep the handles together when in use. The broilers are intended for chops, steaks, toast and kindred sittles to be cooked over the flame of a gas, gasoline, oil or and bottom strips. It is also supplied with adjustable legs of different lengths on the ends, to allow of standing it in an inclined position. It is divided into compartments of suitable sizes to accommodate dollars, half dollars, quarters, dimes, nickels and cents, with a marked plate at the left of each compartment to show the amount of coin in the register at any time. The capacity of each compartment is shown in the cut, holding \$90 in coin. The manufacturer remarks that the register is useful, simple, convenient, compact and ornamental; that it combines two articles in one, a coin register and a coin holder; that it is a great time and labor saver, avoiding mistakes; that when the cash is in place it is counted and registered in stantaneously, a glarce showing the

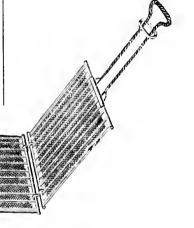


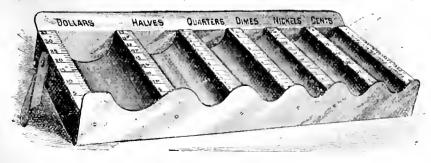
Fig. 2.-Tooster or Broiler Open.

spirit stove, without, the manufacturer says, the risk of burning. The discovery made by Sir Humphrey Davy early in this century, which led to the invention of the safety miners' lamp, has been utilized in this production, it being impossible for flame to pass through the gauze.

#### The Universal Cash Register.

The Universal cash register shown in the accompanying illustration is put on

amount; that it acts as a check on those left in charge of the cash while the proprietor is absent; that the registering plates are arranged to count new and worn coin as commercially received and paid out; that it is so adjusted that it can be used in an ordinary cash, "nwer, placed on a desk, or when position into the safe occupies but little space, and that when wrapping coins they are already arranged to pick out and wrap up. The maker recommends the register for use in all kinds of business, it



The Universal Cash Register.

the market by Samuel Chittick, 130 | East Twenty-third street, New York. The body of the register is of maple wood, well finished, about  $5 \times 9\frac{1}{2}$  inches in well finished, about  $5 \times 9\frac{1}{3}$  inches in will be delivered to any point in the size, with nickel plated metallic top United States, when prepaid, for \$1.

being specially useful to bookkeepers and cashiers making up pay rolls, and for all who handle coin. The register The Merk Christmas Tree Holder.

The cut here shown represents a Christmas tree holder offered by the Allentown Hardware Works, Allen-town, Pa. The holder is made of iron

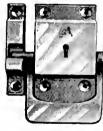


The Merk Christmas Tree Holder.

neatly finished in gold bronze or japan. By an ingenious centrivance the tree is held secure by strong arms which ex-tend upward from the main body of the receptacle in which it is placed. If desired the tree may be revolved.

#### Refrigerator Door Fastener and Lock.

P. J. Conrcy & Co., Philadelphia, Pa., are offering a refrigerator door fastener and lock, as here shown. It is explained that in closing the door the



Refrigerator Door Fastener and Lock.

top part of the cam strikes a curve at the back of the catch and ferces the handle down, automatically making a tight joint, so essential to refrigerators. When opening the door the handle is lifted a quarter of a circle, and the top of the cam strikes the curve in the catch and forces the door open. It is pointed out that the door shuts or opens with ease and that no springs are used in the construction of the fastener. The fastener is also provided with a service-able lock of new design. The fasteners are made in different sizes and styles in brass and bronze metal. The makers state that the good's are simple, strong and durable, and that as their business is confined to the manufacture of hardware for refrigerators their energies are devoted to producing new and desirable articles in this line.

#### Sensible Mincing Krives.

The accompanying cuts relate to improvements in the handles of Sensible



Fig. 1.-Sensible Mincing Knife No. 10.

mincing knives, manufactured by N. R. Streeter & Co., Groton, N. Y.; New York office, W. H. Jacobus, 90



Fig. 2.—Sensible Mincing Knife No. 40.

Chambers street. The new features of the multiple bladed mincing knives are enlarged and bowl shaped handles and



Fig. 3.-Sensible Mincing Knife No. 60.

the mode of fastening the blades. The blades are of tempered steel, nickel plated, and can be removed when they require sharpening. The company's plan of numbering the knives is such that the first figure indicates the number of blades; thus No. 10 has one blade, No. 20 has two blades, &c. The company remark that the knives are easy to clean.

#### The Columbia Lifter.

A. C. Williams, Ravenua, Ohio, is offering a lifter as illustrated herewith.

for use on ordinary roads, an exercise, it is stated, that brings into use every muscle of the legs, back, neek and arms: also, that any one familiar with the use of ordinary roller skates can put them on and with little practice can skate on the road at the rate of 6 or 7 miles an hour. The point is made that the skates are less expensive and more convenient than the bicycle, and that the use of them is more easily learned. The msnu-

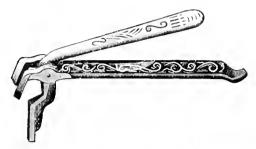


Fig. 1 .- The Columbia Lifter.

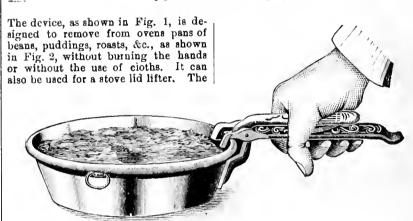


Fig. 2.—Lifter in Use.

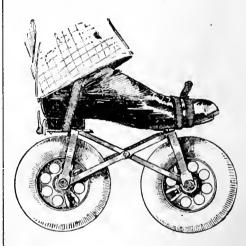
lifters are furnished japanned, also full nickel plated.

THE DEATH IS ANNOUNCED at Dover, Del., on September 17, of Alden B. Richardson, a prominent citizen of that town and an ex State Senator of Delaware, at the age of 70 years. Mr. Richardson was born in South Reading, Mass., and was descended on both sides from old Puritan settlers of New England, his mother being a direct descendant of John Alden, who came over in the "Mayflower." Marrying a lineal descendant of William Penn, he went to Dover, Del., in 1849, and opened a stove store with his brother-in law, George M. Stetson, as partner. The firm were the first to send out tinware peddlers through the State. The partnership was dissolved some years ago, and Mr. Richardson started a cannery at Dover, which, under the name of Richardson & Robbins, has grown to be one of the largest in the country. At the time of his death Mr. Richardson was president of the Dover Gas Light Company, and a director of the First National Bank of Dover. He leaves a wife and one son.

#### The Skacycle.

The Skacycle Mfg. Company, 3103-3105 Ludlow street, Philadelphia, Pa., are introducing a roller skate with a pneumatic tire, as here shown. The skacycle, it is stated, is an American invention, patented some years ago, but not useful until now on account of the failure to secure pneumatic tires that would be servicable. It is designed

facturers claim that the skates are made throughout of the best material, with pneumatic tires of the highest grade; that the wheels run and are adjusted on ball bearings and that every part is per-



The Skacycle.

fect. The skates are finished in nickel and retail for \$25 per pair.

The report of the Comptroller-General of Patents in Great Britain, just lasued for 1893, shows great activity in invention. The total number of British psteats applied for during the year was 25,120, an increase on the previous year of 951. The number of applications under the International Convention was

174. Gross receipts on account of petents and trade-marks were \$839,375, against a gross expenditure of \$440,500.

#### Sunset Rule Gauge.

The cut shown herewith represents the Sunset adjustable rule gauge and finger protector offered by J. J. McManus, 75I-753 Market street, San Francisco, Cal. The device is made of brass, of the shape and size shown in the cut, and is applicable to any ordinary 2-foot pocket rule, is easily ad-

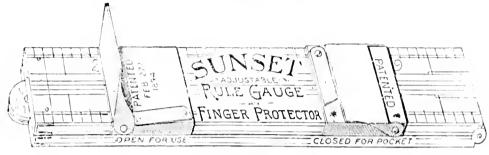
so that the rivet on either side of the gauge from the end of the rule to the measurement of the radius of the circle gives the center or revolving point, a pencil or awl giving the marking point.

#### A Trick Knife.

C. J. Healy, 121 Chambers street, New York, is effering a trick knife, as herewith shown. It is a one-bladed, brass lined, genuine stag handled knife. The knife requires a different method blade is pushed home with the forefinger, when the end of the knife is struck, jarring the lug back into the hole in the blade, holding it securely closed. The blade cannot be opened or closed in the ordinary manner. Samples will be sent, prepaid, by mail at \$t per de zeu.

#### Ohio Knock Down Stove Pipe.

The Gesuga Foundry & Mfg. Company of Painesville, Ohio, are introducing to the trade a form of stove pipe



Sunset Rule Gauge,

justed, and is to be carried on the rule in the pocket when not in use. As a ninger protector, when on the rule, it protects the finger from splinters or a rough surface when acribing a line parof handling to open and close it from an ordinary knife, and herein consists the trick. In the shoulder of the blade is a hele into which a lug drops when the knife is held in a certain position,

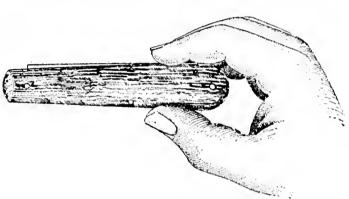


Fig. 1.—Opening the Knife.

allel to the edge. As an adjustable gauge it can be placed at any required position on the rule simply by sliding. It may also be used as a marking gauge, and it is stated that with a pencil or

and from which it drops out when the position is reversed. To open the knife it is held as in Fig. 1, with the shield down and with the forefinger pressing against the blade. The free end of the

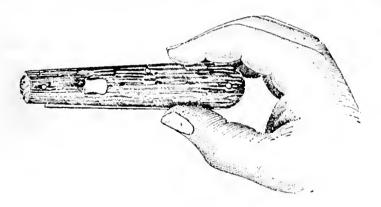
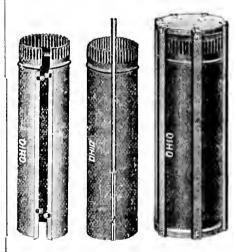


Fig. 2.-Closing the Knife.

scratch awl all work usually done with a marking gauge, mortise gauge or panel gauge can be performed. It can also be set in an instant as a hinge gauge for marking the cuts on doors and casings in fitting butts or hinges. It is explained that it may be used as a compass or divider by aliding the gauge

knife is then struck lightly on a counter or some solid substance, which jars the lug out of the hole in the blade and back into a hole in the handle. The finger is removed as the knife is atruck and the blade flies open of its own accord. To close the knife it is held as in Fig. 2, with the shield up, and the

known as the Ohio. It is referred to by the makers as being practical, durable and amoke proof, and of such construction that no specific directions are necessary for putting it together or taking it apart. It is stated that a number of the Ohio stove pipe joints can be put together so as to make a perfectly firm smoke tight pipe 46 feet in length if desired. The joints can be knocked down and nestedso as to be readily shipped in crates of 25 joints cach. The illustration which we pre-



Ohio Knock Down Stove Pipe.

sent herewith shows the manner of putting the pipe together, and also the appearance of a crate ready for shipment.

An advertisement for tinners in New York City says "bring tools." Such a condition, observes the Sun, would exclude many workmen from employment at this time, because hundreds of mechanics pawned their kits during the worst of the depression, and many have not yet got them out. The skilled mechanic buys the best tools of his trade, and comes to have an affection for them and for their familiar handmarks. There is nothing more pathetic and significant in the windows of the pawnbrokers than such tools, eloquent of the skilled hands, now idle, that recently wielded them.

# THE TIN SHOP.

#### Pattern for Gore in Ball.

From W. S. G., Penbrook, Pa.—Inclosed find plan and profile of ball formed of sections, with part in plan indicated by J K L cut away. I can obtain the pattern for the section A I K J, but fail to get a correct pattern for the gore J K L. Will The Metal Worker inform me how the pattern is to be obtained.

Answer.—The manner in which the pattern for section A I K J is obtained

N M into any convenient number of equal parts, and from the points thus obtained carry lines parallel with M H cutting the miter lines I A, I K and K J. Extend the center line I I', on which lay cut a stretchout derived from N M, all as shown by S S'. Through the points in the stretcheut line draw the usual measuring lines, and, with the T-square placed parallel with S S', bringing it successively against the points

successively against the points in M Q carry lines cutting P Q. From point K on J K erect a perpendicular, upon which lay out a stretchout derived frem P Q, all as shown by W W'-that is, make the distance 65 in W W' equal to 65 in PQ, 54 of WW' equal to 54 of PQ, &c. Through the points thus obtained in W W' draw the usual measuring lines, and with the T-square placed parallel with W W' and brought successively against the points in J K cut corresponding measuring lines. A line traced through these points of intersection, as shown by W X W', will form the pattern of one-half of the gore indicated by J K L of plan. If the pattern for J K L is desired in one piece extend the measuring lines through W W' and with the dividers set off the same distance on lines of similar number in W X W'; or use W X W' as a pattern for marking W X' W'. If the ball is composed of narrow sections the pattern for gore can be obtained as follows: With I as center and I J as radius strike the arc J g e and extend J K until it intersects the arc at the opposite side, as Y. Then biscct J Y in Z and use J Z for the radius for striking the arcs W X W' and W X' W'. Thus with J Z as radius and X of pattern as center strike a small arc at x', then with the same radius and with x' as center strike the arc W X W'. The arc W X' W' can be struck in a similar manner.

# 

PLAN

Pattern for Gore in Ball.

is as follows: For convenience draw a circle, as shown, which divide into the number of parts of which the ball is to be constructed—in the present instance eight, as indicated by A B C D E F G II. From the center I draw miter lines, as indicated by I A, I II, &c. Extend II A, and erect the perpendicular M O, and from the center I draw I R parallel with II M. With R as center and R M as radius strike the arc O N M. Divide

in the miter lines I A, I K and K J, cut corresponding measuring lines, as indicated by the dotted lines drawn from I A, I K and K J. Lines traced through the points of intersection, as indicated by S T S' U' V U, will be the desired pattern.

For the pattern of gore proceed as follows: From point K draw K P parallel with II M, and with the T-square placed parallel with M O and brought

## The O H One Piece Stove Pipe Elbow.

In the accompanying illustration we present a general view of what is known as the O H one piece stove pipe elbow

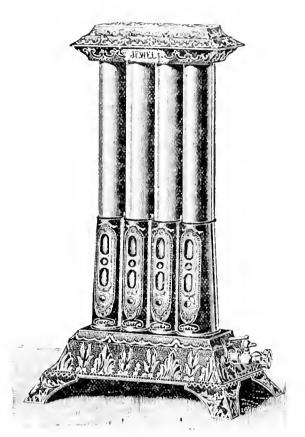


The " O H" One Piece Store Pipe Elbow.

manufactured by the Lawrence-Letts Nibow Company, Limited, of Waverly, E. Y. The engraving so clearly indicates the construction that very little description seems to be necessary. The clbow is made both plain and of planished iron, it being offered in two sizes—namely, 5 and 6 inch. The manufacturers refer to the extreme durability and strength of this elbow, as well as to the precision in size, quality of material and attractiveness of design.

#### Jewel Gas Radiators.

George M. Clark & Co., 149 to 161 Superior street, Chicago, have just brought out a line of gas heating stoves presenting decidedly novel features. They say somewhat facetiously that the time has passed when people were satis iron V shaped chamber directly over the burner and discharge it at the top back into the room at a temperature so high that it will light a match, as witnessed by the writer. It is seen from this description that there is no mingling of the products of combustion with the air heated for circulating in the room. The space about the inner flues is pur-



Jewel Gas Radiators.-Fig. 1.-General View of a Four-Tube Radiator.

fied with a gas heating stove made from a piece of gas pipe with holes drilled in it at the bottom of a section of 9-inch stove pipe. Improvements have been necessitated to conform with modern ideas of constructive beauty, sanitary principles and highest fuel efficiency. The Jewel gas radiators have been devised to meet the requirements of this advanced age. In Fig. 1 of the illustra-tions herewith given is shown a four-tube radiator. These radiators are constructed with a cast iron base and top, while the tubes are of cast iron for nearly half their hight and Russia sheet iron the remaining distance. The burners are in the base and are ignited by means of a pilot light. The tubes are constructed with cast iron bottoms, because it has been found that sheet iron tubes get overheated and discolored or misshaped, soon rendering the stove unfit for use. The tubes are not separately made, but are corrugated from a single piece, strongly overseamed at the end. Thus there is no portion of the stove which cannot be easily reached and dusted or otherwise cleaned.

The inside construction of these radiators is a special point of merit. It will be best understood by referring to Fig. 2, which represents a vertical cross section. This shows that the tubes are double. The outer tubes carry the products of combustion from the burner to the chimney connection, and radiate their heat through the sides and top. The inner tubes take cold air from the room through the openings shown at the right of the cut, heat it in the cast

posely small, so as to check the upward passage of the products of combustiou and more highly heat that portion of the stove intended to diffuse heat by radiation. Either atmospheric or illuminating burners are furnished with these radiators. The atmospheric, or blue flame, burner is a hollow cored casting slotted throughout its length, and so constructed that the flame from end to end is perfectly even and intensely hot. Care has been taken in the construction of the base to guard against the danger of deflecting heat downward and thus igniting carpet or floor. This point has been thoroughly covered, and the radiator can be placed anywhere without fear.

These radiators are beautifully finished in three styles. They are made with tubes enameled in blue and top and bottom ename'ed in white and gold or nickeled, or neatly stove blacked. Mica windows are inserted in the bottoms of the tubes, with a row of ruby jewels extending across below them. These radiators are furnished in four sizes, with 4, 6, 8 or 12 tubes. They are adapted to either manufactured or natural gas.

A decision of the United States Circuit Court of Appeals in Philadelphia, which was given last week in favor of the Westinghouse Electric Company, reversing the decision of Judge Green of the United States Circuit of New Jersey on the Edison-Westinghouse infringement case, is one of the most important patent rulings ever given.

The General Electric Company claimed that the E iison fee fer and main patent covered almost all the large electric lighting plants that have been erected by the Westinghouse Company, and that the enforcement of the patent would give them—the General Electric Company—a practical monopoly of central station lighting, whether by the direct or alternating system. This patent, by the present ruling, is declared to be void for lack of invention, leaving the Westinghouse Company a clear field.

Warren Webster & Co., Canden, N. J., report considerable activity at their works. Among recent orders received for Webster vacuum feed water heaters and purifiers of large size were the following: B. & O. Tunnel Plant, Baltimore, Md., 3000 horse power; Westinghouse Electric & Mfg. Co., Brinton, Pa., 2500 horse-power; Pennsylvania Bolt & Nut Company, Lebanon, Pa., two 1000 horse power; Clucinnati Street Railway Company, 1000 horse-power; the City of Boston, a special machine; Fairfield Paper Company, Fairfield, Mass., 600 horse-power; Chicago Edisson Company, North Side Station, Chleago, 2000 horse-power; the Johnson Company, Lorain, Ohio, 3000 herse-power; Philadelphia Gas Company, two 600 horse-power, and one 500 horse-

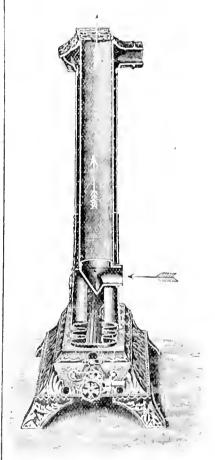


Fig. 2.—Vertical Cross Section of the Radiator.

power. The firm have also received a number of orders for Webster separators and for the Williames vacuum system of steam heating.

The William Cramp & Sons Ship & Engine Building Company have just paid a 2 per cent. quarterly and a 10 per cent. extra dividend.

## HOT WATER. STEAM AND

American Society of Heating and Ventilating Engineers.

In response to a call is ued by an or ganizing committee appointed at a previous informal meeting, there assembled at the Broadway Central Hotel, New York, last week, a large number of men interested in the heating trade, and effected a permanent organization of the American Society of Heating and Ventilating Engineers. The earnest interest taken in building up the society on a high plane is readily seen from a perusal of the following taken from the Constitution:

#### ARTICLE 1.

Section 1. The name of this association shall be the American Society of Heating and Ventilating Engineers.

Sec. 2 The headquarters of the society shall be located in the city of New York.

Sec. 3. The officers shall consist of a president, three vice-presidents, a secretary, a treasurer, a board of managers and a council.

council.
Sec 4. The objects of the society shall

be:
1. The promotion of the arts and sciences connected with heating and ventilation, and to encourage good fellowship among

its members.
2. Improvement in the mechanical con-

Improvement in the mechanical construction of the various apparatus used for heating and ventilation.
 The maintenance of a high professional standard among heating and ventilating entities.

standard among heating and ventratives gineers.

4. To establish a clearly defined minimum standard of heating and ventraliation for all classes of buildings.

5. To favor legislation compelling the ventraliation of all public buildings in accordance with the standard of this society.

6. To encourage legislation favorable to improvement in the arts of heating and ventilation, and to oppose legislation inimical to the business of the eogineer.

7. The reading, discussion and publication of professional papers, and the interchange of knowledge and experience among its members.

its members. To establish a unform scale of prices

8. To establish a divices, for all professional services, SEC 5. Fifteen members at any meeting shall constitute a quorum.

#### ARTICLE 2

SECTION I. The society shall consist of members, honorary members, associates,

members, honorary members, associates, and judiors.

Sec 2. A member shall be a heating or ventilating engineer or expert, or a mechanical, civil, electrical, mining, naval or military englueer, or an architect, who has been professionally engaged in the work of heating or ventilating for at least five years, and he shall be at the time of his admission to membership not less than 27 years of age. Graduation from a school of engineering of recognized repute shall be considered as equivalent to two years of active practice. He must be qualified to design as well as to take charge and direct that branch of heating and ventilating work he has made his specialty.

well as to take charge and direct that branch of heating and ventilating work he has made his specialty.

SEC. 3. To be eligible as a junior the candidate must be at least 23 years of age, and must have been actively engaged in the work of heating and ventilating for three years, or a graduate of a technical school of recognized repute with at least one year's active practice in heating and ventilating.

SEC. 4. To be eligible as an associate the candidate must have such a knowledge of, or connection with, the applied science of heating and ventilating as to qualify him, in the opinion of the council, to co operate with heating and ventilating engineers in the advancement of professional knowledge.

SEC. 5. Honorary members shall be distinguished persons elected by the society.

SEC. 6. All members, honorary members, juniors, and associates, shall be equally en

titled to the privilege of membership, except that honorary members, jumors, and associates shall not be entitled to vote nor to hold any office of the society.

SEC. 7. Jumors and associates may become eligible for membership.

#### ARTICLE 4.

Section 1. The initiation fees of members and associates shall be \$15 and their annual dues shall be \$10, payable in advance. The initiation fee of juniors shall be \$10, and their annual dues \$10, payable in advance. A junior, being promoted to full membership, shall pay an initiation fee of \$5.

of 85. A notice of 60 days will be given of the date and place that the first regular meeting will be held, which will be in New York some time in January, 1895.

#### List of Officers.

The officers elected to serve until the first regular election at the January meeting are:

President, E. P. Bates, Syracuse,

First vice-president, W. M. Mackay, New York City.

Second vice president, W. F. Wolfe, Boston, Mass.

Third vice-president, Charles Onderdonk, Philadelphia, Pa.
Secretary, L. II. Hart, New York

Treasurer, J. A. Goodrich, New York

Board of Mauagera: F. P. Smith, New York City; A. A. Carey, New York City; H. J. Barron, New York City; Henry Adams, Washington, D. C.; James A. Harding, New York City; also President Bates and Secre-

tary Hart. Council on Membership: C. W. Newton, Baltimore, Md.; Prof. R. C. Carpenter, Ithaca, N. Y.; F. W. Foster, Boston, Mass.; A. A. Cryer, New York City; U. G. S. collay, Brooklyn, N. Y.

The formation of the society is largely

due to the efforts of L. H. Hart, who proposed it to a number who would be interested, and secured the preliminary meetings. That such a society can be meetings. made a valuable institution is cause for congratulation on the excellent start

Some idea of its strength can be gained from the number of members enrolled at the first meeting and given

#### BALTIMORE, MD.

Herman Eisert, Charles W. Newton.

BOSTON, MASS.

Alfred A. Huuter, R. D. Kimball, Wiltsie F. Wolfe. Mark Dean, John A. Fish, Frank W. Foster

BROOKLYN, N. Y. Neville P. Andrus, Edward A. Monroe, U. G. Scollay.

BUFFALO, N. Y.

Henry B. Prather.

CHATTANOOGA, TENN.

John H. Petherick.

CHICAGO, ILL.

John D. Hibbard, James Mackay, George D. Hoffman, James R. Willett, T. J. Waters.

CINCINNATI, OHIO.

11. D. Crane.

DENVER, COL

James B. Badger.

ITHACA, N. Y.

R. C. Carpenter.

JERSEY CITY, N. J.

G. W. Plastow.

NEW YRK, N. J. T B Cryer.

NEW YORK. NEW YORK.

Win. H. Hill,
Charles C. Lincoln,
C K. Longkoecher,
C K. Longkoecher,
W. M. Mackay,
A. S. Mappett,
A. B. Marshall,
Win. A. Russell,
Percival H. Seward,
F. P. Smith,
Judson A. Goodrich,
James A. Harding,
L. H. Hart,
J. R. Wendover.

NORWICH. CONN.

Thomas J. Douglas, Charles F. Hauss. PHILADELPHIA, PA.

Stewart A. Jellett, has. S. Onderdonk, Geo. P. Steel. A H. Fowler. John Gormley,

PITTSBURGH, PA.

G. C. Blackmore.

PROVIDENCE, R. 1.

John A. Payne.

ROCHESTER, N. Y. C. S. Hopkins.

ST. LOUIS, MO.

J. H. Kinealy. SYRACUSE, N. Y.

Edward P. Bates.

TROY, N. Y.

J J. Wilson.
WASHINGTON, D. C. Henry Adams. Homer Adams,

WILKES-BARRE, PA.

B. Harold Carpenter.

YONKERS, N Y.

Joseph M. Stoughton.

#### The American Boiler Company,

of Bcaton, New York and Chicago, have issued a handbook of useful information and price-lists for steam and water fitters. The book is a handy volume of pocket size, bound in stiff covers with rounded corners, and contains 120 pages. The first 25 pages are devoted to illustrations, descriptions and price-lists of the various styles of hot water heaters and ateam boilers for heating and for power manufactured by this company. The next 17 pages treat of various patterns of radiators, with full lists of sizes and capacities. Valves and fittings take up 30 pages, in which the most improved devices in these lines are illustrated and described and prices are given. Among these are expansion tanks, thermometers, floor and ceiling tanks, thermometers, illor and ceiling plates, floor sleeves, pipe hangers, gauges, registers, automatic regulators, &c. Tools require 10 pages and comprise pipe wrenches, pipe tongs, pipe cutters, screw plates, atocks and dies, taps and reamers, pipe vises, pliers, &c. Then follows miscellaneous information of value relating to weights of iron of va'ue relating to weights of iron, consumption of coal, evaporation of water, expansion of pipe, properties of saturated steam, a table of extreme variations of temperature at numerous points in the United States, a table of areas of circles, measurements of valves from center to end, data blanks in preparing for estimates, steam estimate blank, matter estimate blank, form of specification and contract for steam heating apparatus, suggestions for hot water heating, practical points on direct and indirect radiators and piping, plans and diagrams for house heating by hot water on the two-pipe and one-pipe system, &c. Not the least important feature of the book is the reduction made in list prices of steam boilers and hot water heaters.

#### The Greenhouse.

The sheltering of plants from severe weather by what are known as green-houses is an old device. At first it was practiced merely as an adjunct of luxurious living. In modern times the cultivation of flowers, fruits and even vegetables under glass has become a large and important industry. There are many, however, who assist in the construction of greenhouses, who supply them with heating apparatus, or who use them for pleasure or profit, who do not understand the principles that are in this way made to play a part in supplying the wants of mankind. In the first place, there are many who, if asked to explain the uses of glass in a greenhouse, will answer: "It gives the plants light and draws heat." When asked to explain how glass draws heat, they will reply, substantially, that on sunny daya a greenhouse does not require so much heat to warm it to the required temperature as the same sized building would need if built of brick and provided with the usual number of windows; and, as the sun shines upon brick buildings and glass houses alike, it proves to their satisfaction that glass really does draw heat.

Now in this attempted explanation both the premises and the conclusion are wrong. In no case does a glass house require less heat to warm it to a given temperature than an equally impervious brick building of the same size, exposed to the same weather, whether the day be dark or sunny Glass has no more power to "draw" heat, in any sense of compelling heat to pass through it, than has wood, stone, or even ice. In fact, glass, like wood, stone or ice, is obstructive to the passage of heat, though to a less extent than the materials named. Heat passage is in no wise helped by the glass.

When the sun shines upon a greenhouse, solar heat passes in faster than the interior heat can escape until such time as the temperature rises to a point where the transmission becomes equalized both ways. The fact that until the temperature reaches the point of equal transmission in and out, the exterior heat goes through the glass faster than the interior heat goes out, is what gives rise to the popular impression that glass has some mysterious power which draws heat through it. Of course, this fact means that some of the heat which enters through the glass from the outside is temporarily imprisoned, and thus there is an accumulation of heat But this curious action also needs explanation.

What is there about glass that allows heat to pass through it faster in one direction than in the other? Nothing whatever. Turn the panes inside out and the same thing happens as before. Solar heat, even on a cloudy day, passes into a greenhouse more rapidly than the heat thus admitted passes out, even

though the total outward transmission of heat derived from the heating apparatus be much greater than the heat derived from the sun; but the reason sought is not to be found in any poculiarity of the glass. All white glass is alike in this respect. The reason is found in the quality of the heat itself.

It is a curious fact that the quality of heat varies much according to the source whence it comes. In the facility of its passage through different materials radiant heat from a luminous source like the sun, or a mass of metal heated to whiteness, far exceeds that of heat obtained from a non-luminous source, and when it has been absorbed by non luminous bodies, that is to say, when the latter have been warmed by it, this heat, in passing off, is no longer heat from a luminous source. It, therefore, gets out through the glass much more slowly then it got in.

The action may be illustrated somewhat by a large tank containing molasses into which, through a small hole, hot molasses is allowed to flow. If a hole be bored in the side of the tank, having the same size as that through which the hot molasses runs in, a less quantity of liquid will escape from this hole than runs in. The molasses is molasses all the same, but in the tank is becomes thicker by cooling, and it flows through the same size hole less freely. In other words a change of condition has produced a change in action.

A popular lecturer, in speaking of windows, once made use of the expression "glass is a hole to heat." In the sense which this lecturer intended, all substances are holes to heat; that is, heat passes through all substances without distinction, but it passes at different rates through different bodies; heat from luminous sources and heat from non-luminous sources have each their own "tricks and manners" in this respect.

But a far more important function of glass in greenhouses than admission of solar heat is the admission of light. Too much solar heat may be injurious to plants in greenhouses. To lessen its force the panes are coated with a wash of whitening which obstructs the passage of heat, while yet a sufficiently free passage of light is permitted. Plants can no more thrive without light and air than men or animals; and a successful constructor of greenhouses cannot disregard these points. In all greenhouses artifical heat must be relied upon to keep up temperature to the required point in cold weather; and the manner in which this heat is applied and regulated is a prime element of success in greenhouse management.

#### HEATING NOTES.

THE LARGE STOCK of hot water heaters made for John A Scollsy, 72 Myrtle avenue, Brooklyn, N. Y., and which accumulated at the foundry of John Davies, has all been delivered, and snorder placed for about 100 more. Mr. Davies reports an increasing trade in making castings for hot water heaters, which he is successful in turning out smooth and free from leaks.

THE INSTANTANEOUS WATER HEATING COMPANY of 141-143 O Mario street, Chicago, Ill., and 838 Broadway, New York, have issued a supplement to catalogue No. 2, illustrating three sizes of their new series of Instantaneous water heaters. The latter are specially designed to meet the requirements for which the construction of the company's

other heaters are not adapted. Special attention has been given to the construction of the new goods, with a view to delivering the water in a pure and wholesome condition. Every part of the water surface is thoroughly tinued and scaled from the gas and products of combustion, which is most important when the water is used for making tea, colleg. A

THE RICHARDS IN A MORGAN COM-PANY, 94 Beekman street, New York, report a lively trade in their Cyclone steam and hot water apparatus. It is being pushed with energy this year, as those set last year have proved highly satisfactory.

THE CHICAGO HEATING COMPANY, 40 North Clark street, Chicago, have the contract for steam heating in the store and flat building of J. W. Utesch, Fortieth street and Ashland avenue.

THE L. H. PRENTICE COMPANY, 203-205 Van Buren street, Chicago, are to install a steam heating plant in the Masonic Orphans' Home, Fulton and Ada streets.

Among the contracts recently taken by the John Davis Company, 69 to 79 Michigan street, Chicago, can be mentioned the following: Power plant for the Chicago Telephone Company, Lake and Franklin streets; piping and connections for power plant for the Chicago City Railroad Company, Fifty-second street and Wabash avenue; new power plant for the Calumet Elevator Company, South Chicago.

ARTICLES OF ASSOCIATION Were recently filed with the County Clerk at Detroit, Mich., by the McRac & Roberts Company, organized for the manufacture and sale of steam brass goods and steam supplies generally. The capital stock is placed at \$125,000, of which sum practically one half is sald to have been actually paid in. The incorporators are Wm. D. McRae, Wm. Dobie, Albert G. Laird, all of Wallaceburg, O.t., and Daniel Dobie and D. H. Roberts of Detroit.

THE RICHMOND STOVE COMPANY Of Norwich, Conn., favor us with a copy of an attractive 40-page pamphlet, which they have just issued, bearing the imprint of George T. Barnes, heating and ventilating engineer and con-tractor, Newburgh, N. Y. The introductory pages are devoted to the subject of steam and hot water heating, following which are illustrated notices of the Richmond steam and hot water heaters. There are also given engravings of radiators of various kinds, as well as of Richmond heaters for use in small dwellings, offices and the like, and of the Richmond hot water laundry range. Nearly half of the pamphlet is given up to engravings made direct photographs of buildings heated by the company's goods. There are numerons testimonials showing the satisfaction which the Richmond heaters have given wherever used.

Col. W. C. Mowry of Norwich, Conn., well and favorably known to the trade as a manufacturer of steam and hot water boilers, was nominated for Scretary of State by the Republican State convention, held at Hartford, September 18 and 19. Colonel Mowry has served his district in the Legislature of Connecticut and has long been prominent in politics. If elected, the genial colonel will bring to the office distinguished ability and the rare courtesy for which he is justly celebrated.

# TIN PLATES.

#### Tin Plate Wages.

John Jarrett, secretary of the Tinned Plate Manufacturers' Association of the United States, has been notified by M. M. Garland, president of the Amalgamated Association, that the vote among the members employed in tin plate and black plate mills on the prop osition of the manufacturers to make an average reduction of 25 per cent. in wages on account of the reduction in the duty on tiu plates and black plates has been finished. The men voted unanimously not to accept the reduction, but will offer a counter proposi tion in a few days agreeing to accept a cut of about 10 per cent. The manucut of about 10 per cent. The manufacturers insit that they must have a reduction of fully 25 per cent., and un less they secure it they will operate with non-union men. A few plants in Ohio and Indiana are closed pending adjustment of the wage scale and to make repairs. A meeting of the tin plate manufacturers will be held in Pittsburgh in a few days to take action on the rejection of their proposition. At present it looks very much as though a strike will take place.

## Atlanta Steel & Tin Plate Company.

The Indiana Tin Plate Mfg. Company of Atlanta, Ind., were reorganized on the 11th inst., and the following officers elected: C. A. Ford, president; F. D. Morgan, vice president and gen eral manager; Dan Goodykoonty, treasurer; E. S. Walten, secretary and assistant treasurer. The company were chartered under the name of the Atlanta Steel & Tin Plate Company. Capital authorized \$150,000. This company were originally incorporated in October, 1892, an eight stack washhouse was built, and in the spring of 1893 the company commenced tinning, but owing to an impossibility to reconcile existing differences between the manager and the company a receiver was appointed, and the plant was recently sold for the benefit of the creditors. It is the intention of the new management to put in three stands of hot and three stands of cold rolls, ample capital having been raised for that purpose. The contracts for the engines, boilers, mill building, tinning machines, pickler, doublers and other machinery have already been let to Ford & Donnelly of Kokomo, Ind. This company will have the advantage of free natural gas for fuel, and will own 2000 acres of gas territory southwest of Elwood, Ind., being the very best gas territory in the Indiana gas belt. The mill will be arranged on the plan of the New Castle, Pa., plant. The mill building will be 80 x 280 feet; the wash or tin house, 50 x 100 feet; pickling room, 30 x 80 feet, and the assorting and packing room, 50 x 80 feet. All brick and iron work will be commenced at once.

#### SCRAP

FORD & DONNELLY, Kckomo, Ind., have just completed a battery of eight 125 horse-power boilers for the Moutpelier Sheet & Tln Plate Company, and are building for that concern ten Thomas & White tinning machines, one pickler, doublers, bran machines, elemers, furnace castings, &c. They are just completing a battery of boilers for the Irondale Rolling Mill Company, at Middletown, Ind.

THE AMERICAN TIN PLATE COMPANY, at Elwood, Ind., and Molewood & Co., at Gas City, Ind., have served notices on the employees of their hot mills department that a cut of 25 to 30 per cent. in wages will be made on October 1, when the reduced tariff on tin plate goes into effect.

A London PRESS DISPATCH of September 19 states that the announcement has been made by a wealthy American iron and steel manufacturer now in England, that he, with a number of other capitalists, is about to begin the manufacture of tin plate in the United States on a scale that will add largely to the American output.

R. NEVILLE & Co, of Lianelly, South Wales, have just completed the erection of a three-mill tin plate works near Bilbao, Spain. W. P. Lewis of Cynon Tin Plate Works, Aberdare, has left Wales to take charge of the new plant. The works are well arranged and fitted with the latest appliances, and a successful start was made last week. A wealthy Spanish company are the proprietors.

The opinion of the London Iron and Steel Trades Journal in regard to the prospects of American tin plate manufacturing under the new tariff is expressed as follows: "It is confidently asserted that the tin plate works in the United States can hold their own against Wales under the new tariff, and we have no doubt that some of the works producing good roofing plates and other apecialtics will go on as usual, but for the ordinary run of cheap plates we expect the American demand will now be as good as ever."

Saunders, Fielding & Bond, 108 Fulton street, New York, inform us that their tin plate works in Jersey City, N. J., will be closed. Their special brand of roofing plates—"Snow-drop"—will in future be imported from Wales.

The New Rolling Mill for making black plates, which is being added to the Pittsburgh Tin Plate Works, New Kensington, Pa., will, we are advised, be in operation in about five or six weeks, when the manufacture of bright charcoal and coke plates will be undertaken. Hitherto the output of these works has been confined to roofing ternes.

THE TIN PLATE WORKS of Marshall Bros. & Co., 1156 Beach street, Philadelphia, are running with four sets on double turn.

Somerton Tin Plate Works, Brooklyn, are reported to be busy. Three black plate mills and three tinning sets are in regular operation.

THE STATISTICS of the New York Custom Honse for the month of August,

1894, just issued, piace the amount of tin and terne plates in the bonded warehouses of this port on the last day of the month at 15,990,670 pounds, valued at \$383,867, as compared with 14,776,116 pounds, of the value of \$360,418, on the last day of July, 1894, and 10,228,208 pounds, valued at \$253,208, on August 31, 1893.

The tin plate works of the P. II. Laufman Company, Limited, Apolio, Pa., are kept busy in the production of Laufman's Apollo large sized terne and leaded sheets, for which the concern have a very satisfactory demand. A circular issued by the company calls attention to these sheets as being coated with a mixture of tin and desilverized lead, hand double dipped, with oil finish. The sheets are made from 20 to 36 inches wide, and 60 to 120 inches long, and of No. 17 to No. 30 gauge. They are specially recommended for car roofing, eave troughs, conductor pipe and cornice work. It is claimed for them that they are an ounce lighter to the square foot than galvanized sheets and that they possess the advantage of not sealing off in working, the affinity of the metal being perfect.

Rumors from several quarters of the projected building of black sheet mills and tin plate plants seem to indicate that there are plenty of capitallsts who possess a lively faith in the atahllity of the American tin plate industry and its ability to exist with profit under the new tariff conditions. The Pittsburgh Dispatch has interviewed an Eastern business man of reputation and financial solidity, who was last week in the Smoky City looking for a site to locate a complete plant for the manufacture of tin plate from the billet. He had the command of \$200 000 for investment in the business, and, it is said, had already let a contract for the construction of the plant, which is to have a capacity of 2,400 boxes a week. The Dispatch mentions that several other enterprises of a similar character are contemplated.

HUGHES & PATTERSON, Incorporated, Philadelphia, have closed down their tin plate works indefinitely.

HENDERSON TIN PLATE COMPANY, Norristown, Ps., have arranged their works for the accommodation of five tinuing machines. They have now in operation one Morewood set and are turning out a "Worcester" grade terne. Another machine, for coke tins, is about to be installed.

MONTPELIER SHEET & TIN PLATE COMPANY, Montpelier, Ind., advise us that the work on their extensive rolling mill and tin plate plant is progressing actively, and that they expect the works to be running in about three months' time. They are heing built under the direction of Superintendent Harry Herbert, formerly of New Castle, Pa., who is putting in an entirely new design of furnaces, and building a six-mill plant, which, when completed, will be one of the finest in the country. Twelve the ning stacks are ready, and the necessary machines have been oldered. The

mill is very favorably situated on high ground, with excellent water and gas facilities. The following are the names of the officers of the company: M. Selberiling, president; C. A. Ford, vice president and secretary; Harry Herbert, superintendent, and J. H. Shoemaker, treasurer.

THE ELWOOD TIN PLATE COMPANY, Elwood, Ind., are adding a tinning bouse to their rolling mill plant, with the view of coating their own black sheets.

#### HEATING & PLUMBING.

#### NEW WORK AND CONTRACTS.

HERBERT BAKER, a Brunswick, Ga., plumber, has been awarded the contract for putting in the sewerage at the Mansfield street, Oglethorpe Preparatory and Risley school buildings. The contract calls for 50 closets and the job is a big one and an important one.

G. L. GARDNER has closed a contract with Geo. F. Ma'oncy, Adams, N. Y., for a steam apparatus complete for his hotel. There will be 39 radiators.

THE CARTON FURNACE COMPANY, Utica, N. Y., have been awarded the contract for the heating by steam of the new St. Luke's Parish House and Church. Two brick set boilers set in battery will be used. This job will be an elaborate one in every detail, as the company propose to show a perfect church steam plant.

W. H. MEEKER & Co, South Norwalk, have the contract for putting the heating apparatus in the new school house at Rowayton, Conn.

ROCHE & McGuire of New London, Conn., are engaged in plumbing Giles Bishop's new residence on the Boulevard. The bathroom will be lined with Tennessee marble and the plumbing fixtures will be of the finest. Newman & Cronin have the heating of the house and will put in a Mahony steam beater.

Two No. 26 Gorton patent side feed hot water boilers will be used for heating the Fogg Lodging House, recently erected on Fifty-third street, near Eleventh avenue, New York. The installation is being made by Gillia & Geoghegan of the city named, and is worthy of note on account of the great \$123 of the boilers.

BAILEY & STOTHART, Middletown, Conn., are putting a Gurney hot water heater in the residence of Capt. Geo. L. Dickinson, at Essex.

JAS DONOVAN, Middletown, Conn., is putting a Boynton steam heater in N. C. Stiles' residence, two hot water heaters in M:ss Alsop's house on Lincoln street, and a Boynton hot air furnace in Oscar Leach's house at Durham.

Proposals will be received up to September 29 for a ateam heating plant for the city offices at Sandusky, Ohio.

A NEW HEATING APPARATUS is to be purchased for the almahouse at Trenton, N. J.

William G. Heath & Co., Providence, R. I., have received from the city the contract for putting in gas pipes, setting up the old boilers and connecting the radiators at Hose Station No. 3, on Pond street. The contract for plumbing has been awarded to Phillips & Paillips.

THE CONTRACT to equip the new school house at North Franklin, Maine,

for steam heating, has been awarded to the Carman-Thompson Company of Lewiston.

TRACY BROTHERS have received the contract for the plumbing of the new Wiswall Building, on Washington street, Saratoga Springs, N. Y.

WM. E PAUL Portsmouth, N. H., has the contract for heating the Pickering Block, and will use a carload of Exeter radiators, which were also used in the Rockingham National Bank.

#### Trade Notes.

STRANSKY & Co of 27 Murray street, New York, favor us with a copy of an illustrated price-list, bearing date of September, 1894. The 54 pages of which it consists show illustrations and give prices of Stransky Steel Ware, which is referred to as being very durable, absolutely pure, quick cooking and easily cleaned. It is said that in boiling, stewing, roasting or baking one thing will not taste of another, nor will the enamel be affected by the acids in vegetables and fruits. The ware consists of an extensive assortment, offered for the most part under the name Cameo. In connection with the goods we find in addition to prices, the number of various sizes made and their respective capacities.

THE CORTRIGUT METAL ROOFING COMPANY of Philadelphia, Pa., direct the attention of the trade to the lower rate of duty on Tin Plate, which takes effect on October 1. In their advertising space this week they state that they have arranged to give their customers and every one desiring metal shingles the immediate benefit of the reduction, and prices based on the new duty can be obtained by addressing the company at their main office, at Broad and Hamilton streets, Philadelphia, or at their Western office, 134 Van Buren street, Chicago, Ill.

THE SHUSTER FOUNDRY, Franklin and Willow streets, Philadelphia, have, during the aummer, made some large shipments of the Shuster Patent Ca'ch Box and Fresh Air Inlet. These articles have been in good demand at seashore resorts and other places where sand and gravel are the chief materials us d in the construction of roads.

W. C. Hine, receiver for the Youngatown Stamping Company, Youngatown, Ohio, has just issued his seventeenth statement of affairs of the above concern. It shows that on September 1 there was the sum of \$10,611.87 on hand, while the business was reported to be in good condition.

THE CENTRAL STAMPING COMPANY, with office at 25 Chif street, New York, are about erecting a five story brick Tinware factory, 75 x 45 feet, estimated to cost \$20,000.

WILLIAM MACHERT & Co, Reading, Pa., manufacturers of Hardware and the Machert patent Chimney Cap, have taken possession of their new plant.

Byram & Co. of Detroit, Mich., report business steadily picking up. They recently shipped the third Collian Furnace to the Plano Mfg. Company, West Pu'lman, Ill., and the third Collian to the McNeal Pipe & Foundry Company, Burlington, N. J. They equipped the new shops of the Howard & Bullough American Machine Company, Pawtucket, R. I., with two Col-

haus, and one 76 inch Farusce went to the Johnston Harvester Company, Butavia, N. Y.

WHITING FOUNDRY EQUIPMENT COMPANY, Chreago, have shipped a No. 8 Whiting Cupola to the Abram Cox Stove Company, Philadelphia, and a No. 6 Cupola to the United States Radiator Works, Dankirk, N. Y.

THE E W. BLES COMPANY Of Brooklyn report that their European business has been very large. They have shipped to Switz cland within the last two months a special watchmakers' Drop Hammer, several Punching Presses titted with sub-presses for watch work, and a No. 14 Toggle D.a ving Press. A large shipment of tools and machinery for the manufacture of clocks and their cases has gone to Germany, to one of the largest clock making concerns in the world. France has also received a large shipment of tools for the making of granite enameled ware and kitchen utensils. Several watch factories have also been supp'ied with tools from the E. W. Biss Company. Austria has received Nov 12 and 31 Toggle Drawing Presses, Nos. 18 19, 20 and 21 ad j istable Power Presses, and Nos 383 and 39 Power Presses with a number of dies, and a No. 161 double action Press with dies and special feed for making primers. A large improved automatic Perforating Press is now nearly completed, and will be shipped to England for the manufacture of perforated metals up to 50 inches in width.

THE DALLAS TINWARE MFG COMPANY, Dallas, Texas, have been placed in the hands of the Sheriff on an attachment in favor of the American National Bank of that city. The firm have teen in business five years.

To facilitate the transmission of orders during the rush season, and to render their patrons the most prompt service passible, the American Radiator Company have had placed in their general offices, at Chicago, a direct Postal Telegraph wire. This is merely another illustration of the enterprise of this well managed company.

EDWARD MILLER & Co, Meriden, Conn., call attention in their advertlaement this week to the Miller oil heaters, which are said to be just the thing for all time and everyday use. The heaters are illustrated and sufficient descriptive particulars presented to enable the reader to obtain a comprehensive idea of the general construction and operation.

The Charles Willy Mfg. Company. Bay Shore, L. I., are offering Burr's Gunoleum, a lubricant for protecting and preserving metals from rust and tarnish. It is recommended by the manufacturers for use on guns, rifles, revolvers, cutlery, bright steel goods, typewriters, fine machinery, dog chains and collars, metal trimmings on fishing rods, bicycles, stove pipe, carpenters' tools, skates, brass plates, brass railing, brass work on yachts, &c. The preparation is about the consistency of vaselene, and it is stated that heat or cold does not effect its consistency, and that it never gums or drips. The manufacturers state that the preparation prevents pits in shot gun and rifle barrels, and that a light coat of it on any unprotected metallic surface will prevent rust, corrosion or tarnish and will preserve its finish. The Gunoleum is put up in collapsible tubes of two sizes, also in 14, 12, 1 and 5 pound cans. Samples will be sent free by the manufacturers upon application.

# STOVE TRADE NOTES.

The Open Fire Place, Past and Present.

The above is the title of a paper read by John Ward before the Birmingham Architectural Association in Birmingham, England. The subject discussed is one in which our readers are in terested, and we therefore present what Mr. Ward had to say:

By using the open fire place we adopt the best known method of warming our dwellings. The system is the one taught by the great solar system itself.
By the rays of the sun the whole earth is warmed and nourished, and all nature made joyous and healthy. It is only when the great center of heat is partially hidden from us that we have to look for an artificial substitute, and that substitute is best found by following, as far as possible, the sun's principle of radiation and reflection. By direct radiated heat from the fire place we get warmth for our bodily comfort. while the air we breathe may remain cool and refreshing. With hot air it is different; the atmosphere is always more or less oppressive, and in such warmth we feel none of the exhilaration obtained from the genial warmth of the open fire place. That is the difference between convected heat and radiated heat-radiated heat having the peculiar property of passing through the air without warming it." illustrated by the heat accumulated in objects near a fire, while no such in-convenient heat is felt in the air around them. The atmosphere of a room ultimately becomes warmer from the air coming in contact with the objects warmed by the rays of the fire; but this is in so mild a form as not to destroy the health giving properties of the air. The open fire place is the oldest of all methods for warming our dwelling places, although, like every-thing else, it has been subjected to many changes, and some improvements. No modern scientific method has yet been found to supersede its popularity or its hygienic qualities. From its similarity in principle to Nature's great source of heat, it is doubtless destined to remain the only satisfactory method. Its main drawbacks are its waste of heat generated and its curtailed venti lation as now used, although in this respect it is better than other methods.

#### Smoky Chimneys.

If we could make the opening into the flue higher without incurring the risk of smoky chimneys, and retain more of the heat generated, it would leave nothing to be desired. Our forefathers evidently did not mind a little amoke, judging from the immense openings in some of the old fire places. Most modern attempts at imitating these large openings have proved failures, and all sorts of schemes and devices seem to have been tried to remedy this without success. Plate glass blowers are sometimes used to remedy the evil, but these, while perhaps retaining some of the breadth of treatment as far as appearances are concerned, do not assist the ventilation It is possible our fore

fathers did not suffer so much from smoke, as they doubtless had more numerous and stronger currents of air to feed the flues, thus avoiding any necessity for a down draft, for a smoky chimney after all means defective venti-What is wanted is an open fire place where the opening into the flue is about 4 feet or 4 feet 6 inches in hight from the hearth, so that we may sit, if not stand, in an atmosphere that does not become stagnant and vitiated. This, unfortunately, at present does not appear to be obtainable with any degree of certainty. The earliest form of the open fire was made in the center of the hut or building, the smoke escaping through a hole in the roof, sometimes fitted with a louver. Uncivilized though this may appear to us, it undoubtedly claims some advantages which the modern fire place does not pessess. The whole of the radiated heat being thus available, and as a means of ventilation it must have been far ahead of the low openings of modern times, as no foul air could remain long in an apartment so warmed, nor would the drafts in such an apartment be neces. sarily concentrated upon those seated round the fire. The atmosphere may at times have been somewhat cloudy, but in those days there were no delicate decorations to apoil. The hole in the roof is still to be found in our poorer habitations, and in parts of Scotland it is considered a sign of advanced civilization, compared with those that allow the smoke to escape through the door or window, or any other outlet it can find.

#### The English Fire Place.

The English fire aide or fire place at the side of the apartment is supposed to date back to the time of the Norman Conquest; still retaining the hole in the roof to earry off the smoke. The roofs of the fortified eastles being constructed and used for defense, it became necessary to abandon the hole in the center, an oblique opening in the wall being used, which was succeeded by the chimney flue. A very early example of a chimney flue occurs in an old fire place in the guard room in Conisborough Castle. This would show that the principle of This would show that the principle of the modern chimney was understood as far back as the Norman period; but its use was so unusual that Leland, in the sixteenth century, speaking of Bolton Castle, in "Domestick Architecture," writes: "One thynge I much noted in the Hawle of Bolton how chimners were conveyed by tunnels made on the syds of the walls betwyxt the lights in the hall, and by this means and by no covers is the smoke of the harthe in the covers is the smoke of the harthe in the Hawle wonder strangely conveyed." And as late as Elizabeth's reign apologies were made to guesta lf they could not be accommodated with chambers provided with chimneys. The flues in the old times were of enormous dimen slons, being sometimes as much as 8 feet or 9 feet wide and 3 feet deep. They were usually provided with a large hood or canopy, which projected boldly into the chamber, and was gencrally fixed at a hight from 6 to 8 feet from the hearth, thus giving ample

space for radiation and ventilation. When later these hoods came into disuse, there was no proper conduct for the smoke to the flues, hence the lowering of the mantels. This was accomplished at first by means of a hanging screen of teather or other material, and finally by lowering the mantel itself, which, in the course of the eighteenth century, gave us the fire place as it practically gave us the fire place as it practically exists to-day. These hoods were recommended and used by Alberti, 1484; Phillbert Delorme, 1518-1577, and others. Speaking of the loss of these hoods, Herbrard wrote in his "Csminologic," in 1756: "It is aurprising that we should allow these old chimney pieces to be changed in order to follow pieces to be changed, in order to follow the fashion of the day, without taking the pains to examine whether the utility is as great as the novelty. It appears that it is not. It has been observed, on the contrary, that of the few old chimneys which have escaped remodeling, there is scarcely one which smokes. Old men testify to the same effect in regard to those which existed in their time, while we have no heaitatation in saying of the majority of our new chimneys that they do smoke." The open fire place in its early form consisted of a niche or recess ouilt in the walls, with side piers or jambs to support the hood. They were frequently circular ln plan, the hearth forming one half of the circle, while the hood formed the other half, this form of hearth being considered admirable for reflecting the rays of the fire into the chamber. The hoods were practically what our chimney breasts are now, and were made in wood and stone, and ornamented in various ways. At times they had brackets or shelves at the sides where n might be placed lamps. The old fire place recesses were frequently large enough to accommodate a number of persons with seats on the hearth, and the space contained within the acreens used as protections against drafts, together with the jambs of the fire place, formed an ante-chamber, apart from the large halls in which they were built, and here the family gathered in the winter evenings to listen to some famous legend of older times and the songs of the wandering minatrels. Sometimes when very large halls were to be heated the fire places were 30 feet or 40 feet wide in the recess. These were sometimes divided, or rather the mantel supported by columns, as in the case of a fire place at Linlithgow Palace. Sometimes instead of these columns there were piers extending from front to back, thus forming three distinct fire places in a row, each provided with its own separate flue. These piers not only supported the mantel, but enabled the amount of fire to be regulated as re-Wood was the crdinary fuel quired. till the seventeenth century, and huge logs, 6 feet to 8 feet long, were burnt on the capacious hearths, resting on two atandards or andirons—the word andlron either being a contraction from brand iron (brand isen, Anglo-Saxon) or a corruption of endiron. Tomlinson says: "In the hall, the ancient seat of hospitality, they were atrong and massive, to support the weight of the huge logs, but the standards were kept bright or ornamental with brass rings, knobs, rosettes, head and feet of animals and various grotesque forms. In the kitchens and in the rooms of common houses the standards were of iron; but in the halls, of copper, brass, or even silver."

(To be continued.)

## Thomas, Roberts, Stevenson Company

of Philadelphia have issued an eightpage supplement to their catalogue, descriptive of their new goods and improvements. A detailed view of the Ideal Fortune and Aome Fortune ranges is seen on the opening page, the difference noted in the two ranges being that the former has a large end ash pit and draw hearth plate, and the latter a front hearth the entire length of the range, with front ash pit door. The ranges have right or left wrought steel ovens, easily removed, and either triplex, duplex or improved flat grates. Page 3 illustrates the Acme Fortune range, and describes it as being suitable for hard or soft coal, coke, wood, or natural gas. It is handsome in appearance, and is shown with an ornamental pipe shelf. It has six holes and is supplied in two sizes, with or without pipe shelf, upper and lower hot closets, reservoir and water front. Another page shows a hot air arrangement for New Broadway, New Altoona and New Happy Choice ranges, whereby the entire back of the range is utilized for a healing surface. The remaining pages show the Sunbeam, a five hole range of neat design especially suited for burning wood; the True Fortune double heater, with heavy cast cylinder of improved shape, steel plate inner drum, large cold air supply, nickeled skirt, feet, foot rails, base, top corners and upper top ring, and Ransom's patent duplex or draw center grate; a powerful soft coal double heater called Our Fortune, having a brick lined cylinder extending to top of feeder door, upper hot air section of heavy material with inside draft cheek, large feeder and ash pit doors, nickeled trimmings and Rarsom's duplex or draw center grate; and the Coin Fortune, a high class single heater. The grates in these heating stoves may be changed or renewed through the ash pit doors without removing the brick.

#### The Union Stove Works.

We have just received from the Union Stove Works of 70 Beekman and 66 and 68 Gold streets, New York, copies of the six sections constituting their 1894-95 entalcane. The sections vary in the number of pages, the largest consisting of 48 and the smallest of eight. all being issued in white covers and printed in tinted ink upon good paper. Section No. I shows an extensive line of cook stoves and portable ranges of all grades and varieties. The goods are attractively decorated and embody the modern improvements. In connection with the cuts is to be found descriptive particulars, together with the sizes in which the goods are made, dimensions of oven and length of fire chamber. Among the more prominen ranges may be mentioned the Glen B Bon Bon B, Dover B, Colon. Palos Home Run, New Rival, Lakewood Durham B for 1894, New Paragont

Massens and the Paragon B. ond section of the catalogue relates to water back ranges, Franklin stoves, fire place heaters, hot air furnaces, &c. The water back ranges are the Astor, West End, New Beauty and the Royal. The furnaces are represented by the Commander Improved D, shown in portable form and also for brick setting. The back page of this pamphlet is embellished with a bird's eye view of the company's works at Peekskill The third section shows the company's line of sheet iron stoves, which includes the Dash, Flirt B and the Belmar. are attractive constructions and are made in sufficient variety to meet the demands of the trade. It is said that out of the assortment of the Flirt B it is possible to make a line of 112 different stoves. The fourth section of the cata'ogue shows heating stoves, which are offered under such names as the Rover, Dash, Red Cloud and Octagon. The fifth section of the catalogue relates to parlor stoves and presents illustrations of the Rush, a new square parlor in four sizes; the Invader, a new pattern heater with round tire pot, shakir g and dumping grate; the Goldenrod, effered in a variety of styles and sizes; the Durham square parlor for 1894, and the Belmar, made in three sizes. The sixth and last acction of the catalogue shows an extensive line of laundry stoves and tailors' heaters. Accompanying the catalogue is a price list consisting of 24 pages.

#### ODD PLATES.

Henry Gleason, 108 Beckman street, New York, has returned to stove ornaments, gas stove brass goods and his line of stove specialties after attending the political convention at Saratoga Springs, N. Y. He is mailing to stove manufacturers samples of his No. 10 damper knob that will hold a draft damper to its place by means of a spring. The letter which follows the samples is characteristically interesting from many points of view.

THE J. F. PEASE FURNACE COM-PANY, manufacturers of the celebrated Economy heaters and furnaces, have opened a new branch other at 86 Lake street, Chicago, two doors west of for-mer location. They have fitted up a tasty showroom and effice, in which are displayed samples of their complete line of warm air furnaces, stram beaters, hot water heaters and combination heaters. Their representative will be pleased to welcome the Western trade at all times. Storehouse facilities have been ar ranged from which orders for prompt shipments are being made. A well assorted stock of furnaces and repairs will be kept on hand. The reputation of their goods, already so thoroughly established, will undoubtedly be increased largely by this move.

RATHBONE, SARD & Co., Albany, N. Y., made exhibits of Acorn stoves and ranges at a number of county fairs held in the State during the past few weeks. Their goods were awarded first premiums in a number of instances, prominent among which may be mentioned the Johnstown Fair, where Acorn stoves and ranges were displayed by Frank Randall. In referring to the scheme of exhibiting samples of stoves on a wagon, as described in these columns last week, the company state that this plan has been followed by them since last spring, and that their New York City traveler has been using the scheme ever since.

"NEV GARLAND COURING GOODS" is the catch line of a lange poster reecived from the Michigan Stove Com-It gives illustrations of four tyles of the Champion Garland range, four styles of the Demestic Garland range, four styles of the Challenge Garbind range, four styles of the Family Garbied range, four styles of the Heine Garland range, three styles of the Home Garland cook, three styles of the Family Garland cook, three styles of the Monarch Garland wrought range, and three styles of the Columbian Garland wrought range. Among these will be found cooking goods to meet any requirements as to size, capacity or kind of fuel. The poster is lithographed in colors, so that it will form an attractive advertisement when hung up in a store, and will save constant reference to the company's catalogue for the purpose of making comparisons of styles.

The QUEEN STOVE COMPANY of Denver, Col., is the name of a concern recen ly incorporated, with a capital stock of \$50,000. The incorporators include Charles Kibler, Louisa Kibler and Milton Smith.

The Flant of the Auburn Stove Foundry Company, at Auburn, Maine, was slightly damaged by fire on the afternoon of Thesday, September 11. When discovered the roof was ablaze, and it is thought the fire caught in some way from the cupola. The building was only slightly damaged by fire, although the water caused some loss to the contents of the structure, fully covered, however, by insurance.

According to advices from Taunton, Mass., the business situation is showing signs of improvement. The Weir Stove Company and O. G. Thomas are working nearly full time, and are said to have a gratifying number of orders ahead. The Taunton Iron Works Company are running four days a week, but expect to increase this time very shortly. The Presbrey Stove faning Company have a sufficient number of orders on hand to keep them running for some time, and it is stated that other concerns are doing well.

THE MISSOURT GAS MACHINE COM-PANY of St. Louis, Mo., has just been incorporated with a capital stock of \$12,000 to manufacture and sell Ruthven's patent gas cooking, heating and lighting machine. The incorporators are E. J. Scalinis, J. H. Cordes and S. J. McKinley.

The Michioan Stove Company received a letter a week or two since from one of their custemers in Michiesota, in which an order was given for a fire pot for one of the largest size Garland base burners. In concluding his letter the customer said that he was using three Garland stoves and that this was the first "extra" he had been obliged to obtain, the stove baving been in use every winter for the past 14 years. Every manufacturer is naturally proud of the record made by his goods and the case referred to is one which cannot prove otherwise than gratifying to the Michigan Stove Company.

MICA OF ALL SIZES and in packages to fuit can be found at the Palermo Mica Company, 27 Peck Stip, New York. This is the season when assorted parcels are needed for fitting out stoves that have been kept on storage and for supplying the demands of customers.

The Portsmouth Stove & Range Company of Portsmouth, Ohio, have brought out a powerful furnace under the name of Mogul. This, we understand, is the company's old Mogul henter, gotten up in furnace form at a price which enables the small householder, storekeeper, &c., to secure a furnace at the cost of a stove. It has anti-clinker grate, coment joints and, as the manufacturers term it, "all the frills needed."

The Dippo Mfg Company of Chagrin Falls, Ohio, are vigorously pushing the sale of their Ferrosteel ranges for 1894, which possess many novel features that are fully set forth in a pamphlet which the manufacturers have issued. We understand that a copy of the publication will be sent to any one in the trade who may apply. The foundry and general offices are at Chagrin Fills, while their sample and sales rooms are at 63-64 Wade Building, Cincinnati, Onio.

THE EXTERPRISE STOVE COMPANY of Vincennes, Ind. are offering the trade in their Star Radiator a very attractive oak stove, rossessing many features of interest. The latter are fully described in a circular which the company have issued, and any dealer desiring a copy of it can obtain one upon application. The manufacturers refer to the Star Radiator as "the only stove of the kind made," and they anticipate for it a large and constantly increasing sale.

THE CRAIG REYNOLDS FOUNDRY COM-PANY of Daylon, Onio, are giving employment to a full force of hands and are in a position to make prompt shipments. Their Triumph furnace is of fered the trade in 34 sizes and any number of styles, adapted for warmair, how water and steam heating. The company state that the capacity of their works is over 6000 complete furnaces yearly.

THE ANSHUTZ-BRADBERRY COMPANY of Pittsburgh, Pa., are fairly busy in the manufacture of Tremont stoves and ranges and furnaces. In addition to contracts secured by the company, mention of which was made some time ago, they also have the contract for the hesting and ventilating of the new public school to be crected on East street, Allegheny, Pa., and the new addition to Charles Street and Woods Run schools in Allegheny. They also have the heating and ventilating for 18 dwellings in the East End, Pittsburgh, two in Bellevue, Pa., three in Tarentum, Pa., and contracts in Greensburg, Irwin and Zelicnople, Pa. The company note a continued increasing demand for their Tremont hot air furnace, which is giving excellent results to all users.

EDWARD MILLER & Co. of Meriden, Conn., favor us with copies of circulars illustrating the Miller oil heaters, intended for use in spring, summer, autumn and winter. They are made in several sizes and possess features of construction which cannot fail to interest the trade. The makers claim that there is no dirt, ashes, smoke or smell in connection with these heaters, and that they cook and bake in a perfectly satisfactory manner. The ovens have cast iron deor frames, cast iron racks or shelves and adjustable cast iron rack supports. Some sizes of the Miller oil heater have a font with a capacity of 4 quarts, and will burn 12 hours, while the No. 332 has a capacity of 7 quarts and will burn from 18 to 20 hours. We also have circulars of the Miller lamp, which is constructed on scientific principles and embodies features which have estab-

liahed for it a gratifying reputation. It is said that the construction is such that if any part becomes broken it can be replaced at small cost, thus making the lamp as good as new.

THE EXCELSION STEEL FURNACE COM-ANY, 38 and 4) West Monroe street, Chicago, are now extremely busy. They say that at present the only question which gives them any concern is, "How shall we get out the goods which are being ordered?" They do not know how long the rush will last, but hope it will continue indefinitely. willing to suffer a little inconvenience in the matter of overwork if their cus tomers will only continue to send in their orders. As our readers well know, the company not only manufacture hot air and combination furnaces and hot water boilers, but also make a complete line of furnace fittings, which so greatly expedite the work of the furnaceman.

The Star Coupler Company, St. Louis, Mo., who recently secured the contract for connecting the gas grates in the new Planters' House, St. Louis, have just completed the work. The total number of grates connected was 104. By the new system of using Star couplers this work was done in four days, two men only being employed. It is estimated that under the old system of connection with iron pipe and union it would take two men at least two weeks to have completed this work.

It is reported that the plant of the Rogers Foundry & Stove Company, Belleville, Ill., will soon be put in operation by a number of molders, who will operate it on the co-operative plan.

ONE OF THE INTERESTING EXHIBITS at the Tioga County Fair, held at Owego, N. Y., on Tuesday, Wednesday and Thursday of the week just closed, was that of Dr. J. B. Stanbrough, consisting of 15 different variable. etics of stoves and ranges made by the Fuller & Warren Company. The display was a very attractive one and visitors were greatly interested in the Splendid goods. Doctor Stanbrough carries at his store, 178 Front street, not only a full line of stoves but every thing in the hardware and builders' line. The statement is made that since 1876 he has sold over 1400 Splendid stoves, which is certainly a record of which he may justly be proud. Doctor Stanbrough was assisted at the fair by John M. Palmer, general agent for the company, this being his seventh year.

THE DETROIT STOVE WORKS, Detroit, Mich., are distributing a very attractive circular of the Imperial Jewel square parlor atove, which they manufacture in several sizes. The picture of the heater is printed in colors so as to give as nearly as possible the exact appearance of the stove when in operation. On the other side is a broken view of the stove showing the flue construction. Accompanying the circular is a card bearing the inscription "Please Close the Door." The picture represents a little miss dressed in white in the act of closing a door, in which effort she is obliged to use both hands. Upon the floor close by is her doll, and the general ides seems to be that she has passed from one room to another leaving the door open behind her, and has been requested by one in authority to close it. The card is further embellished with a tac simile of the company's trade-mark, the whole picture being executed in colors. Upon the opposite side of the card is a larger fac-simile of the com pany's trade-mark and a bird's eye view of their works.

THE QUICK MEAL STOVE COMPANY of St. Louis, Mo., have compiled their sales for the present season and they are embodied in the annual pie which the company are now sending to the trade. An inspection of the pie shows that 57,-118 stoves were sold during the season of 1894, which in comparison of 1893 is a slight falling off. Making a comparison of 1892, however, there is a gain of 41 per cent. Of course there must be some reason for this year's falling off, and another glance at the pie shows the company's explanation, as follows: Panic, coal strike, railroad strike and tariff tinkering. When these suggestive reasons are contemplated it is a matter of surprise that the sales of this concern did not show a more serious falling off. As . it was 57,118 is a very excellent showing, and the company have every reason to be satisfied with it.

BAR HARBOR, MAINE, and Nantasket Beach, Mass., were included in the vacation itenerary of E. J. Van Natter, and he has returned to the books of the Thatcher Furnace Company, 240 Water street, New York. He is as brown as a butternut, and possessed of a vigor that enables him to sum up a hard day's work to a total of pleasant reminiscences connected with the names in the accounts.

GEORGE M. CLARK & Co., 149 to 161 Superior street, Chicago, have issued a very tasteful catalogue of their Jewel gas radiators and heating stoves. It comprises 48 pages of illustrated and descriptive matter. The company's new productions, the Jewel radiators, are given the place of honor, which they deserve by reason of their specially meritorious festures in design and decoration. Four sizes are illustrated, and a sectional view is given to clearly explain the ingenious arrangement of the interior by which the heating power of the burning gas is greatly increased. Eight styles of heaters with fire place openings are next shown. These are new in their decorations, which are much more elaborate than in former seasons. They also have a new feature in the location of burners at the base of atove and between the reflectors, illuminating by reflection. The old reliable cylindrical stoves, with their copper reflectors below and passages for heated air above, are atill made by this company and are shown in the catalogue. A few pages are devoted to fittings, and a complete index with code words closes the book.

THE MARSHALL-WELLS HARDWARE COMPANY of Duluth announce in the local papers that they have received from the Michigan Stove Company, through Manager Fred. W. Gardner, two of the finest Garland stoves donated for the benefit of the forest fire sufferers. They were disposed of by raffle, in order to realize the largest sum possible, and the receipts handed over to the relief fund.

The July foreign trade statistics of the United States show, for the first time this year, an excess of imnorts over exports. The figures are: Value of domestic exports, \$51,639 463; value of imports, \$65,300,782. This excess, amounting to nearly \$14,000,000, is attributable largely to the enormous importations of sugar to avoid the increased duties under the new tarlif law. Nearly 50 per cent. of the imports were food products. For the first seven months of this year the excess of exports over imports amounts to nearly \$56,000,000.

# TRADE REPORT.

#### The Iron Market.

An undertone of disappointment is creeping into the market reports from the leading centers, and the outlook is again assuming a sember hue. We have nothing to do with the motives which induce one set of daily newspapers to torture every incident into a proof of unexampled business revival, while another set is industriously at work blackening everything to get a background for high lights in November. The business community wants the truth and that is bad enough without any squinting at polities. The sim ple fact is that consumption has not expanded enough lately in the Iron trade to keep the active mills from engaging in a continuous scramble for work. As soon as one has drawn back temporarily satisfied another rushes in to replenish an exhausted order book. Back of it all is the haunting fear of the coming winter. Winter work is inadequate, except in particularly good times. What will it be after a dull fall and summer?

It is curious to note that Wall street reckens as a good sign an expansion of production of Pig Iron, when the Iron producer looks longingly to that money center for the first indications of a demand for railroad rolling stock and permanent way. The Iron trade cannot hope for any sustained improvement until the railroad requirements come

One bright spot is the activity in the Cast Iron Pipe trade, the majority of the shops being busy. This is the result of the fact that municipal bonds have been about the only ones which have sold quite well. This has helped the Southern blast furnacemen particularly. In this connection the sale of a large block of Iron to a Birmingham rolling mill may be mentioned. But when the Pipe season is over, what

Pig Iron.—No improvement in the volume of the demand has yet come in the New York market, and the situation remains disappointing. We quote standard brands \$12 50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tide water. Southern Iron, same delivery. \$11.50 @ \$12 for No. 1; \$11 @ \$11.25 for No. 2; \$10.35 @ \$10.50 for No. 3; \$10.75 @ \$11 for No. 2 Soft, and \$11 @ \$11.25 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9 75 @ \$10.25

From Philadelphia it is reported that the Pig Iron market is not only dull, but in the majority of cases prices are a trific lower. Some furnaces are well sold up and are therefore independent of the market temporarily, but to effect sales in quantity there is no alternative but to shade prices. This is not due so much to any special falling off in consumption, but to an increase in the supply, which, it is feared, will be still more emphasized as the season advances. Large lots are not called for at present, although if they were it is probable that anything could be shaded 25¢ \$\pi\$ ton, and even small lots are hard to move at the full figures recently ruling. General quotations are given as

follows for Philadelphia and equivalent deliveries:

Chiesgo advices indicate that the local manufacturers of Pig Iron have scored another good week. Orders have been fairly numerous, and inquiries are still coming in from consumers over a wide stretch of territory. Makers are reported to be stiffen ing in their views, and some recent sales have been made at advances on previous rates. Orders are even being turned down on buyers' offers which would have been easily accepted only a short time since. A better demand is roted for Southern Coke Iron in small lots, but particularly from out of town consumers. Southern furnace agents report large inquiries from buyers outside of this immediate vicinity, and therefore a little remote from the in-fluence of local makers. Lake Superior Charcoal Iron still sells in only small lots. Makers' quotations on guaranteed brands and grades are firmly held. Quotations are given as follows for cash.

l ake Superior Charcoal. Local Coke Foundry, No. 1. Local Coke Foundry, No. 2. Local Coke Foundry, No. 2. Local Coke Foundry, No. 3. Local Scotch. Ohio Strong Softeners No. 1. Southern Silvery, No. 1. Southern Silvery, No. 2. Southern Coke, No. 2. Southern Coke, No. 3. Southern, No. 1. Soft. Southern, No. 2. Soft. Alabama Car Wheel. Jackson County Silvery.	10:25 @ 10:50 @ 2:50 @ 10:25 @ 10:25 @ 13:00 @ 10:75 @	10.50 10.25 10.00 11.00 13.50 11.25 10.75 11.25 10.75 18.00 16.00
	15 50 @ 14.25 @	16.00 14.50

In the Pittsburgh district there is a moderate demand for Foundry Irons, and prices are unchanged. Quotations as follows:

Our Cincinnati representative reports a fair volume of business in Southern Pig Iron during the week, but it was mainly in moderate quantities, seldom running as high as 500 tons from buyers in that district, but some good lots have been sold to the East of Southern Coke Iron and of Lake Superior Charcoal Iron for agricultural work and for Car Wheel works. The large and strong Coke furnsees in the South are reported to be holding prices up well, but some of the others are making concessions to effect sales; thus we hear of No. 3 Foundry selling as low as \$6.75, f.o.b. Birningham, or on that basis, but it ranges up to \$7. No. 2 Soft continues to be in good request and is selling at \$7.25, but the furnaces are so well sold already that they are not urging stock on the market. There appears to be a good prospect that all available stocks will be wanted for consumption in the early future. Quotatlons are as follows:

Southern Coke, No. 1	10.25 @	810.75
southern Coke, No. 2	9.75 @	10,00
Bouthern Coke, No. 3	9,00 @	9.25
Ohio Soft Stone Coal, No. 1	14.50 @	15.50
Ohio Soft Stone Coal, No. 2	14.00 %	14.50
Uske Superior Coke, No. 1	12.50 %	13.00
Lake Superior Coke, No. 2	11.50 @	12.00
Eanging Rock Chargoal, No. 1	16.00 @	17.00
Hanging Rock Charcoal, No. 2	15.50 @	16.00
WHIRIDS HOCK CHRICORY 140: 21	20.00	

Some improvement in the demand for Pig Iron has occurred in the St. Louis market, but prices have failed as yet to show any additional strength. No. 2F undry is quoted at \$10.25, f.o.b. cars St. Louis, and it is reported that this price is being shaded. No. 2 Saft is also referred to as being shaded for desirable orders. Consumers of Iron are not anticipating their wants and are satisfied to cover their requirements. 30 days shead. Quotations as follows for cash, f.o.b. cars St. Louis.

 Southern Coke, No. 1 Foundry
 \$11.00 \$11.25

 Southern Coke, No. 2 Foundry
 10.25 \$10.50

 Southern Coke, No. 3 Foundry
 9.75 \$10.00

 Southern Car Wheel
 16.50 \$17.00

#### Metal Market.

PIg Tlu.-Prices for Straits Tin have advanced sharply since last Saturday. For wholesale lots, September delivery, seller's option, the price is up about 0.60¢, October nearly as much and distant fut-ture deliveries 0.50¢ @ 0.60¢. Official records show transactions of about 500 tons. Quite as much if not more Tin has changed hands privately. In short, the week has been quite a lively one, and, while it is no secret that manipula. tion has kept a lively interest, convincing evidence is presented that fully if not more than the usual amount of stock has passed from importers' hands into the channels of consumption. Arrivals have been heavy, however, and doubtless close in line with rivals have been heavy, however, and doubtless close in line with the distribution. The shipments from the Straits during the first half of the month were quite large also, in-cluding 1700 tons to London, 450 tons to the United States and 360 tons to the Continent, against a total of 1475 tons during the corresponding period last year. This keeps the visible supply at or above 20,000 tons, and it is plain that the strength of the market is due more to speculative maneuvering than to statistical position, although helped to some extent by good purchases by dealers and consumers. Small lots of Straits Pig from store are quoted at 171# 7 lb.

Copper.—Prices have been raised to 9 ±0¢ for Lake Superior Ingots, 9.30¢ @ 9.35¢ for Electrolytic, and about 9.25¢ for common casting stock. It is asserted that all the Lake Ingot obtainable at 9.50¢ or under, for delivery during the balance of this year has been purchased and that quite extensive sales have been made of Wire Bars and other Electrolytic Copper. Sales of casting stock, it is also asserted, reach a liberal total. Another buillish feature comes out in the form of reports that the agreement to restrict production has been perfected, but convincing evidence in this connection is lacking. It would seem, however, that there is a "bull" interest in the market, but it is probably more in the nature of a speculative syndicate than a combination of pro-

ducers, with manipulations adjusted to govern prices on both sides of the Atlantic for purposes not difficult to imagine. Aside from speculative doings, it is clear that consumption is proceeding at a rate that helps the market considerably. Jobbers prices for small lots are unchanged at former quotations.

Sheef Copper.—While orders are still only moderate, inquiries show rather more life, indicating a better feeling among consumers. Prices for Manufactured Copper are firm, but no action has yet been taken in the direction of ratsing them.

Pig Lead -The situation at this writing is practically the same as it was a week ago. There is no chance for export business at prices that would not the shippers more than 2¢ ? lb. That fact, along with the rather large output, causes home consumers to be quite independent, and it is therefore difficult to secure bids above 3¢ for found lots of common Western for near future delivery. There are some sellers at 3.10¢ for October and later shipment, but 3.15¢ is generally asked. During the early part of the week under review quite a good business was put through at or near the lower rate quoted. Less interest has been manifested in foreign Lead, and the chances are against business at better prices than those quoted for domestic. The retail consumptive demand shows little sign of expansion. Small lots of American Pig are quoted at 31¢ @ 31¢ 3 lb, the lower figure being the more common. Manufactured lead is quiet at unchanged prices.

Spelter.—Higher prices for ores and alleged curtailment of production have, in connection with smaller offering, served to stiffen prices somewhat in the wholesale market. Jobbers' prices for small lots of ordinary Western brands aversge 414 Ph. Only routine business has been effected here, however, and the Eastern demand generally is spiritless.

Antimony.—A moderate business has been effected and prices are still rather easy.

Nickel.—Prices are about  $38\phi \oplus 40\phi$  for ordinary quantities and the market is slow.

Tin Plate. - The spot business passing is strictly of a retail character, since buyers will take nothing beyond what they are forced to purchase for the supply of pressing needs, in view of the fact of the new duty going into effect shortly. Some very fair purchases have been made for October and later delivery, but the volume of business is below expectations and prices have remained practically at their former level despite a firmer tone to foreign advices. One of the largest domestic Tin Plate manufacturing concerns have reduced prices along the whole line of their products to the extent of quite a considerable cut. Otherwise prices for demestic Plates show a radiesl change. The outcome of the negotiations now in progress between the American manufacturers and their workmen as to the wage scale will largely influence the future trend of the market for American Tin Plates in their competition with the imported article. For October and later deliveries, the prices now quoted for imdeliveres, the prices now quoted for imported Plates are as follows: Charcoal Time: Melyn Grade, ½ X, IC \$4.65, IX \$1.50 extra; Grange Grade, IC \$4.20, IX 90¢ extra; Allaway Grade, tull weight, IC \$4.15, IX 75¢ extra; Allaway Grade, 100 lb IC \$4.05, IX 75¢ extra. Siemens Steel (Squares,

© ): Full weigh, 10 \$4 10, 1X 75 ¢ extra; 100 lb basis, IC \$3.95, 1X 75 ¢ extra; 95 lb basis, IC \$3.95, 1X 75 ¢ extra; 95 lb basis, IC \$3.95, 1X 75 ¢ extra; 100 lb basis, IC \$4.05, 1X 75 ¢ extra; 100 lb basis, IC \$3.85, 1X 75 ¢ extra; 100 lb basis, IC \$3.80, 1X 75 ¢ extra; 95 lb basis, IC \$3.80, 1X 75 ¢ extra; 95 lb basis, IC \$3.80, 1X 75 ¢ extra; 101 weight, \$4.05; Siemens Steel, 100 lb, \$3.90; Bessemer Steel, \$3.95; Bessemer Steel, 100 lb, \$3.80; Bessemer Steel, 100 lb, \$3.80; Bessemer Steel, 100 lb, \$3.80; Bessemer Steel, 95 lb, \$3.67\frac{1}{2}; Bessemer Steel, 90 lb, \$3.60. Charcoal Ternes; M. F., 1C 14 x 20 \$5.70, 1C 20 x 28 \$11.40; Old Style Pontymister, 1C 14 x 20 \$4.95. 1C 20 x 28 \$9.90; Worcester, 101 weight, IC 14 x 20 \$4.15, IC 20 x 28 \$8.30; Ely, Lily, Dtufftyn, IC 14 x 20 \$4.10, IC 20 x 28 \$8.20; Alyn, full weight, IC 14 x 20 \$3.75, IC 20 x 28 \$7.50; Alyn, 95 lb, 1C 14 x 20 \$3.70, IC 20 x 28 \$7.40; Dean, full weight, IC 14 x 20 \$4.95, IC 20 x 28 \$7.90; Dean, 100 lb, 1C 14 x 20 \$3.85, IC 20 x 28 \$7.50; Dean, 95 lb, IC 14 x 20 \$3.82\frac{1}{2}, IC 20 x 28 \$7.55; Dean, 95 lb, IC 14 x 20 \$3.82\frac{1}{2}, IC 20 x 28 \$7.55; Dean, 95 lb, IC 14 x 20 \$3.80, IC 20 x 28 \$7.50; Dean, 95 lb, IC 14 x 20 \$3.80, IC 20 x 28 \$7.60; D R. D. Grade, full weight, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC 14 x 20 \$3.70, IC 20 x 28 \$7.60; D R. D. Grade, 100 lb, IC

A special London cable dispatch of September 19 to The Iron Age reports on the British Tin Plate market as follows: Tin Plate has been in active demand. The call was chiefly for light weight Cokes. Actual business has been disappointing, however, as buyers are hesitating, owing to uncertain course of the market. Where business has been done prices averaged 1½ pence lower, in the face of dearer Pig Tin. Bessemer Wasters have been in very fair demand. There has been a better demand trom Canada Swansea quotations are as follows:

follows:	
Bessemer Cokes, IC	10/6 @
	. 10/9 @
Charcoals, IC	. 11/6 @ 12/6

## Chicago Report.

Scrap.—The demand for Old Material continues to improve and prices are firm. Dealers quote the following list of buying prices, Chicago delivery:

Per net ton. Per ib

	Per n	et ton. Pe	
•		V	• • •
•	Machinery Cast	6.00	
	Malleable Cast	5.00 -	
	Malleable Cast Stove Plate (free of burnt)		
	Stove Plate (Hee of Blitte)		
	Burnt Iron and Grate Bars		
	Sheet Iron and Hoops		
	Plow Steel and Breaking	4.00	
	Stock Hoos	2.00	
	No. 2, such as Shovels, Hoes,	3.00	
	Pro		•••
	Old Rollers-Whole (If 011)	121	
	" (lron)—cut in single		
	Sheets and Rings	5.00	• • • •
	Old Gas-Pipe and Boiler	× 00	
	Tubes	5.00	• • • •
	Cast Borings	3.00	••••
	Turnings	4 00	• • • •
	Horseshors.	7.00	::::
	Copper Bottoms		5360
	Copper Clips and Heavy	• • • •	7 9
	Heavy Brass		5/4
	Light Brass		3 ¢
i	Pipe Lead		21/4 ¢
	Tes Lead		5 6
۱	Zinc		2 4
١	Rubber		3143
١	reminer	charaigh	and
١	Authrnelte Trade is	Stuggion	Lore

Authrnelte.—Trade is sluggish and prices are still weak. Carload lots of 12 net tons or over are nominally quoted as follows:

•	Egg, Bu	
		and Ch
Chicago, Ili	\$5.25	₹5.50
Milwaukee, Wis	5.25	5,50
Kansas City, Mo	8.45	8.70
Council Bluffs, Iowa	8.45	8,70
Council Diulis, 10	8.63	8.85
Lincoln. Neb	8.45	8.70
Sioux City, Iowa	0.917	

Aberdeen, S. Dak	8.50	8.75
Dubuque, Iowa	6,55	6.80
Medison, Wis	6.75	7.00
St. Paul, Minn	7.75	8.00
Burlington, lowa	6.75	7 00
Des Moines, Iowa	8.20	8.45
Davenport, Iowa	6.55	6.80
St. Joseph, Mo	8.45	8.70
Leavenworth, Kan	8.45	8.70
Omaha, Neb	8.45	8.70

#### Colorado Anthracite.

COLORADO FUEL & IBON COMPAN	rg.
Denver	\$8.00 S.00
Colorado Springs	8.00 8.00
Cheyenne, Wyo	10.00
Missouri River	8.85

#### CONDITION OF THE

## Hardware Trade.

REPORTS received from the trade throughout the country reflect evident improvement in the different business centers. It is apparent that while business has not yet in most lines reached its normal volume, the trade are purchasing more freely to meet the demand which is setting in from their customers, and to prepare for the business of the next month or two. It is an encouraging sign that Mechanics' Tools are beginning to move more freely, and that general Hardware is also in increasing demand. Some manufacturers report the business of the menth thus far as being very satisfactory and larger in volume than they had reason to expect. In prices there is little improvement to note. Most goods continue low, and prices in many cases are somewhat irregular. In regard to collections little complaint is made.

Advices from Chicago. — Shelf Hardware keeps up fully to its former volume, and local jobbers are continuing to extend their territory. The demand is not so largely now for season goods as for general Hardware. Orders are covering the entire range of goods. Cutlery is in excellent demand. Tin Plates are slowly giving way in anticipation of the reduced duty on October 1. In a few cases purchases may be made at the full reduction expected after that time. Heavy Hardware runs along at about the same satisfactory gait. Carload orders for Iron and Steel are more numerous. The Wagon and Carriage trade is inclined to quietness, but a few contracts are being made for materials for delivery next year. Raiload companies are more liberal buyers now than for a year past. The supply houses report a steady gain. August showed a marked increase over July and this month is in the same manner showing an increase over August. Iron and steel merchauts also feel the influence of a better demand from their railroad customers. Still, as compared with trade two years back the volume of business of this character is comparatively light.

## Notes on Prices.

Wire Nails—There continues to be a good and increasing demand for Wire Nails, as the trade are evidently sending in their orders somewhat more freely. There is, however, little evidence of a speculative demand, most of the Nails ordered being required to meet the demands of current trade. There is also an increase in the production, as some mills which have been idle have started up again and others have increased their output. The tone of the market is not as strong as might be desired, and there contin-

ues to be a good deal of active competition among some of the makers. The market price is \$1.20 on dock, and \$1.25 to \$1.30 from store.

Advices from Chicago.—The situation the past week has been unsatisfactory from the manufacturers' standpoint. Some have been compelled to make concessions in order to hold their trade, but others have stood firm in the belief that matters will speedily right themselves. Something favorable is expected from the meeting held at Pittsburgh Tuesday, which was expected to take action calculated to maintain prices. Jobbers are selling small lots from stock at \$1.15 and carloads at \$1.10. They report far better sales the past week than for a long time.

Cut Nalls.—The Cut Nail market is not in a more satisfactory condition than Wire Nails. The demand is fair, though not especially heavy. In the matter of prices the market is not strong in tone, and there is some unevenness in quotations. Quotations from store in small lots, \$1.05 to \$1.10.

Advices from Chicago.—Buyers continue to take small lots and are not yet disposed to speculate on the future. Jobbers quote small lots from stock at \$1.10 to \$1.15.

Barb Wire.—There has been but little increase in the volume of business during the past week and prices are pretty well maintained at the following quotations for Four-Point Galvanized, delivered at the points named: Pittsburgh, \$2 to \$2.05; Cleveland, \$2 05 to \$2.10; Cincinnati, Allentown, Chicago, or New York, \$2 20 to \$2.25. The market though not especially active is fairly steady in the matter of price.

Advices from Chicago.—Manufacturers are still doing only a moderate business. Jobbers continue to quote small lots of Galvanized from stock at \$2.35 and for direct shipment from factory at \$2.25. The demand is not so good in proportion as that for Wire Nails, but still a slight improvement is noticed in the volume of business.

Rodgers' Cutlery.—Alfred Field & Co., 93 Chambers street, New York, sole agents for the United States for Joseph Rodgers & Sons' Cutlery, have issued a new price-list iu which there has been a revision of prices on account of the changes made in the new tariff. The result is that the effect of the change in duties has been to reduce somewhat the prices of many goods, some, however, remaining as before, while in some instances advances have been made. The list covers a large and varied line, and will be of interest to the trade.

Glass. -There is a noticeable improvement in the demand for American Window Glass, with a tendency toward lower prices. The decline in prices has come sooner than was expected, and it is a question in the minds of those con-nected with the Glass trade whether bottom figures have been yet reached. While orders are for larger quantities than during the summer months, they are to fill immediate requirements; and there is a marked absence of inquiries for estimates on stock lots, which are usually expected at this scason of the year. Quotations from Pittsburgh factories are given as 85 and 10 per cent. discount for single and 85 and 20 per cent. discount for double strength Glass. Single strength Glass is quoted in New York at from 80 and 20 to 80 and 20 and 5 per cent. discount, in small quantities. New York and New England prices for Ameri-

can Plate Glass are quoted as being 70 per cent, discount on sizes 5 feet and over, and 70 and 10 per cent, discount on sizes under 5 feet, on the Eastern list. Western prices are quoted as 70 and 5 per cent, discount on Glass over 10 feet, and 60 and 20 per cent, discount on Glass 10 feet and less from Western manufacturers' list.

Old Metals.—The demand for Old Metals continues moderate with little change in prices. The following quotations represent about the rates now paid by New York dealers:

	Ph (21.14)
Heavy Copper	TO O. JA
Light and Tinned Copper	TO P C
Heavy Brass	15 4≒/€
Light Brass	B 38 0
Light brass	B 98 a
Lead	m ~ 14
Tea Lead	TP 577 a
Zine W	19 3 6
No. 1 Pewter	B 10 0
NO. I Tewiter	25 5 0
No. 2 Pewter	26.00
AA I OUT HE CICIAD TO OUT IN B.	\$8,50
Heavy Cast Scrap W gross ton	7.50
Stove Plate Scrap gross to	a = 5.00
Burnt Iron gross to	n S.00
Burnt Iron	

Old Rags, Paper, &c. — There is some improvement in the demand for Paper stock, but prices show no radical change. Dealers' prices, New York delivery, are quoted as follows:

40111019, 41111
No. 1 White Rags 1 10 3 @ 31/6
No 2 White Rags \$ 15 17 @ 2 6
Mixed Rags # Ib
Rives and Sile # Ib 1 @ 1% 9
Hard Sized White Shavings # 15 24 @ 246
No.1 White Book Snavings # 10 1% (4 278)
No 9 White Book Shavings # 15 11/4 (4) 15/4
Light Book Shavings 1 1b
No 1 Mired Shavings & L 14 (Q1 0
No. 2 Mixed Shavings # 10 % @ 246
No. 1 Printed Books # 15 1 @ 1140
Ordinary Mixed Books B D 16 94 6
Newspapers 1b 2-5¢
No. 1 Manila Paper 3 lb % @ 1 0
Mr. 6 Marile Paper With % (0 %)
No. 2 Manual Paper. R B B September 2 Binders Chippings R B B September 2 Binders Chippings R B B September 2 Binders Chippings R B B September 2 Binders R B B September 2 B Se
Common Paper 15
Straw Chips B D
Binders' Clippings B
Jute Butts 15
Mixed Bagging 1 b % @ 1 ¢
No. 2 Bagging B b 16 @ %4
Hemp Twine # lb 1% @ 2 ¢
Manila Rope # 1b 2 @ 21/0
Jute Rope 15 134 @ 134
Mixed Rope 18 1b % @ %

Old Rubber.—Dcalers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, # 1b	Ø,	<b>\$</b> 0.03½
Rubber Shoes, carloads, de- livered at factory, & lb		.04%
Rubber shoes, less than car- loads, # lb	@	.04
Large Hose, #2 ton	(4)	15.00
White Wringer Rolls, # 15	(cg	.03¾
White Syringes, & lb	C	1,697.

L. L. Rowe, 18 Howard street, Boston, Mass., refers in his advertising card this week to a series of specialties of interest to the stove trade. Among the number may be mentioned a Pipe Crimper for crimping the end of stove and other sheet metal pipe so that it can be quickly and easily united with or inserted in another pipe of uniform diameter. Attention is also invited to Rowe's Improved Furnace Regulator and also to Rowe's Automatic Hot Soda Apparatus. Those who are interested are requested by the maker to write for circulars.

THE EFFECT of the new Tin Plate duty on prices is already illustrated in the radical cut made by N. & G. Taylor Company, Philadelphia, of from 75 cents to \$1 25 a box in the quotations of the domestic Tin and Terne Plates manufactured by them, for delivery after October 1.

#### CONTENTS.

ditorials:	PAGE:
Problema R. idmer	, 59
Trade Papers in I Books	, T++
Lectures of Suntray Funding	7.9
A Peoplexing Problem	. 59
The Letter Bur-	
Coal and Steam	P()
Galynmzing Dross	(0)
Faulty Boiler Councetions - Itlus	0.11
Wants One for His Tuishop	60
Fire King Gas Radiators. Illustrated	61
A Telescoped Cupo'a	61
Young Men's Institute, New York	61
Roofing and Cornice—	
Pediment Chart. Hhistrated	11 <sup>Q</sup>
Flashings	13
Plumbing and Gas Fitting-	
Gas and Gas Fitting1X. Hius .	01
The Imperial Hot Blast Blow Pipe.	111. 65
Defective Plumbing in Australia.	
Plumbers' Earth Auger. Illustrat	
Traps and Vents	
Steel Cylinder Head. Illustrated .	
The Retail Store—	
Sir Humphrey Davy Touster	and
Broiler. Illustrated	
The Universal Cash Register. illu	
The Merk Christmas Tree Ho	
Hustrated	
Refrigerator Door Fastener and I	
Illustrated	
Sensible Mincing Knives. Hlustr	
The Columbia Lifter. Illustrated	
The Skueyele. Illustrated	
Sunset Ruic Gauge. Hinstrated .	69
A Trick Knife. Illustrated	69
Ohio Knock Down Stove Pipe, 41	1113711 97
The Tin Shop— Pattern for Gore in Ball. Illustra	ited 70
Jewel Gas Radiators. Illustrated	
Steam and Hot Water-	
American Society of Heating	and
Ventilating Engineers	
The American Boiler Company.	
The American Boiler Collagany.	
Heating Notes	
Heating Notes	
Tin Plate Wages	74
Atlanta Steel & Tin Plate Compa	ny 74
Serap	73
Heating and Piumbing-New Wor	гк ила 75
Contracts	
Stove Trade Notes—	
The Open Fire Place, Past and P	resent. 76
Thomas, Roberts, Stevenson Cor	apany. 77
New Detroit Heaters	
The Union Stove Works	77
Ode Pates	
Trade Report- The Iron Market	79
Metal Market	
Chicago Report	H
Condition of the Hardware Trace	de 80
Notes on Prices	80
Metal and Miscellaneous Prices.	82
Labor Exchange— Help Wanted	8
Situations Wanted	
1 Girdanions	

# Metal and Miscellaneous Prices.

# CHICAGO, SEPTEMBER 20, 1894.

Tin-	Irondale A.A.:
Stralts pigs	Irondale A A : 10, 40 x 14, 12 x 12, 1 Each extra cross \$1.3
	Trandale A
Imported Tin Plates-	Irondale A : 10, 10 x 11, 12 x 12, 1 Each extra cross \$1
Charcoal Plates.—Bright.	Each extra cross \$1
@naranteed Plates command special	Froncide B:
and non-negative to another	10, 10 x 11, 12 x 12, 1 Each extra cross \$1. Tropdale C, IC, 14 x 20
Per box.	Trombale C, IC, 11 x 20
[IC, 10 x 14 6 \$8.50]	Each extra cross \$1
IC, 14 x 20@ 6.60	Poly IC 20 7 28
IC, 20 x 28@ 13.00	Falm, IX, 20 1 28
10, 12 x 12	
IX. 14 x 20@ 8.50	Palm, IC, 20 x 28 Palm, IX, 20 x 28 ≺mpire, IC, 20 x 28 Empire, IX, 20 x 28
IX, 14 x 20	Empire, 1X, 20 x 28  Hickory, IC, 20 x 2  Alaska (heavily coated Alaska IX, 20 x 28  Special, IC, 20 x 28  [1X, 20 x 28
DC, 12% x 17 @ 6.25 DX, 12% x 17 @ 8.25	Alaska (heavily coated
(IC. 10 x 14@ 6.25	Alaska IX, 20 x 28
IC, 12 x 12 0.25	Special, 1C, 20 x 28
Allaway Grade, 1C, 14 x 20	Westmoreland ;
IX 14 x 20@ 7.85	Westmoreland: IC, 14 x 20
$[X, 20 \times 28, \otimes 15.20]$	IC, 20 x 28   Elwood :
Calland and   IX,   10 x   14	1C. 20 x 28
Per hor	Kenwood: 1C, 20 x 28
Ctecl Coke-IO, 10x14.14x20@85.60	1C, 20 x 28
IC 14 x 20 100 m @ 5.50	Furniston: 1C, 20 x 28
Ctecl Coke—IO, 10x14.14x20	IC, 20 x 28 Irondale AA, IC, 14 x Irondale B, IC, 14 x 1 Irondale B, IC, 14 x 1 Each extra cross \$1
20 I 28@11.50	frondale A, IC, 11 x 2
X, 10x14, 14 x 20	Each extra cross \$1.
	Tuna
Charcoal Plates.—Terne.	IC, 14 x 20
Suaranteed Plates command special	Hillings Old Method:
prices, according to quality.	1C, 20 x 28
1C. 14 x 20 \$5.50 20 x 28	
IX. 20 x 28@ 14.00	1C, 20 x 28
Worcester Brand and equal.—	IC, 20 x 28 Scott's Extra Contect
IC. 14 x 20 6.00 kb	Scott's Extra Costed
IC, 20 x 28.12.00	Scott's Extra Coated
20 x 28, 15.00 &	Resquared, IX, 14 x
Tin Boiler Plates.	Scott's Extra Coated
Per box of Per box of 100 sheets. 112 sheets.	Resquared, IC, 14 x Scott's Extra Coated Resquared, IX, 14 x Scott's Extra Coated Resquared, IC, 20 x Scott's Extra Coated Resquared, IC, 20 x
100 sheets. 112 sheets.	Scott's Extra Coated Resquared, IX, 20 a Neville, Stamped, IC,
X, 14 x 28\$13.00 \$18.00 XX, 14 x 2814.50 14.50	Neville, Stamped, IC,
X, 14 x 31 14.50 15.80 XX, 14 x 81 16.50 17.50	1 " " 10
XX, 14 x 31 16.50 17.50 Per box of	i i i i i i i i i i i i i i i i i i i
56 sheets.	Taylor's Old Style, (Stamped and Reso
T 14 T 56 29 50 16.50	i Taylor's Old Style,
XX, 14 x 56 32.50 18.20 X, 14 x 60 31.50 17.65	(Stamped and Reso
XX 14 x 56	Taylor's Old Method,
	Taylor's Ropfing, I
American Tin Plates	(Stamped and Read
Charcoal Plates.—Bright.	(Stamped and Resu
Florence	Columbia, IC, 14 x 20
IQ, 10 x 14, 12 x 12, 14 x 20\$8.50	Munic IC 14 7 20 (St
Florence.— IO, 10 x 14, 12 x 12, 14 x 20., \$6.50 IX, 10 x 14, 12 x 12, 14 x 20 8.25 Falma.—	IC, 20 x 28 (St
IC, 10 x 14, 12 x 12, 14 x 20 \$6.75 IX, 10 x 14, 12 x 12, 14 x 20 8.75 Each extra cross \$2.00 and 20 x 28	Willow, IC, 14 x 20
IX, 10 x 14, 12 x 12, 14 x 20 8.76	Frovall IC 14 x 20
double these prices.	1C, 20 x 28.
Delliant Tierro De altod IC 14 T 20 IS 65	Globe, IC, 14 x 20
Boynl extra IC, 14 x 20	Miami, IC 14 x 20
Almond, IC, 14 x 20	" IC, 20 x 28
Boyal extra. IC, 14 x 20. 6.16 Merion, IC, 14 x 20. 6.0 Aimond, IC, 14 x 20. 5.22 Mint, IC, 14 x 20. 5.00	IX, 20 x 28
Coke Plates.—Bright.	Old Process
Elwood.—1C, 14 x 20	IC, 14 x 20 IX, 14 x 20
o 10 20 x 28	IX. 14 x 20

Irondale A A : 1C, 10 x 14, 10 x 12, 14 x 20, \$7.0	0
Each extra cross \$1,50. Irondale A: 1C, 10 x 11, 12 x 12, 14 x 20\$3.8	5
Produkte A : 10, 10 x 11, 12 x 12, 14 x 20	()
10, 10 x 11, 12 x 12, 14 x 20 \$6.0 Each extra cross \$1.10. Frondale C, 1C, 14 x 20 \$5.5 Each extra cross \$1.00.	0
Palm, IC, 20 x 28	0
Palm, IC, 20 x 28. (4811.0) Falm, IX, 20 x 28. (4811.0) Falm, IX, 20 x 28. (4813.6) Coupling IC, 20 x 28. (4813.6) Empire, IX, 20 x 28. (4814.6) Hickory, IC, 20 x 28. (4814.6) Alaska (heartly coated), IC, 20 x 28. (4816.6)	0 0
4 lucino Chon mily gosted) IC 20 x 28 0514. 0	ŏ
G 17 6	5
Alaska (heavily coated), IC, 20x28@414. (Alaska IX, 20 x 28	5
IC, 14 x 20	00
C, 20 x 28   Elwood	50
1C, 20 x 28	50
Furmiston: 1C, 20 x 28 . \$11, 1C, 20 x 28 . \$11, 1C, 20 x 28 . \$1.4 Irondale AA, IC, 14 x 20 . \$6, 1rondale B, IC, 14 x 20 . 5.7 Irondale B, IC, 14 x 20 . 5.7 Each extra cross \$1,10,	70 70
	20
Juno: IC, 14 x 20	75 50
Tuno:   C, 14 x 20.	00
IC, 20 x 28\$12.5	0
IC, 20 x 28	50
Scott's Extra Conted Stamped and Resquared, IC, 14 x 20	00
Scott's Extra Coated, Stamped and Resquared, IC, 20 x 28	0(1
Resquared, 1X, 20 x 28	00 25
" IC, 20 x 2812. " IX, 20 x 2812.	50 00
Taylor's Old Style, IC, 14 x 20 (Stamped and Resquared)	75
(Stamped and Resquared)15 Taylor's Old Method, IC, 14 x 06.	.50 .75
(Stamped and Resquared)	.50 .00
Taylor's Roofing, IC, 20 x 28 (Stamped and Resquared)11	.00
Columbia, IC, 14 x 20 (Stamped) 6 IC, 20 x 28 (Stamped)13	.00,
IC, 20 x 28 (Stamped)	.00 .50
10 00 = 00	.00 .00
Globe, IC, 14 x 20	.75 .50
1C, 20 x 28	00.
IC, 14 x 20	.00

IC, 20 x 28.	Antimony~  Cookson
1X, 29 x 2822.00	Cookson12¢
IC, 11 x 20	Halletta
IX, 14 x 20 9 25	Wrought-Iron Pipe-
TV 20 x 28	114 and under, Plain
Continuous Rooging Tin.	14 and under, Galv
Merchant's Tandem per roll, \$3.00	15 and over, Fain. 15 and over, Galv. Boller Tubes, list Oct. 24, 1892
Sheet Iron-	Boiler Tubes, list Oct. 24, 189270&105
Black.	Inserted Joints Casing, Ust Nov. 16
Common American Refined.	1892
No. 10 to 18 % 5 2 2 10d 2 8-10c	Steel Boller Tubea27
Nos. 10 to 16	Cold Brawn Seamless Steel Tubing507
21 to 24 * D 2 4-106 3 #	Cast-Iron Soil Pipe-
Common American Refined. Nos. 10 to 16.	
Russia, Planished, &c.	Cast-Iron Soll-Pipa, Tarred; sizes 2 to 6 inches, inclusive
Gennine Russia, all numbers18¢ net.	Other sizesdis 609
Gennine Russia, all numbers 18¢ net. Patent Planished > B A, 10 1 2; B, 9 1 6 dis. 5 8	Leader Pipes-
Craig's Polished Sheet Steel	•
Galvanized.	Abendroth's Gaiv. Spiral Riveted55# Anstin's Corrugated
Juniata or first qualitydis.75@5%	Anstin's Corrugated
Copper-	Ritchie's (Galv. Iron only) Cor'd605
ingot.	
	Plain Adjustable Elbows
Sheet and Rolt.	Plain Adjustable Elbows
Sheet and Bolt. Discount on old list (except advance) on cold rolled polished boller sizes to	
on cold rolled polished boller sizes to	Furnace Fittings-
250.	Discount from Excelsior Steel Fur-
Copper Bottom. Discount on old list, 25%.	nace Co.'s list
Sampley Brays and Copper Tubes.	Steel Roofing-
according to size.  Copper, Bronze and Gilding Tube, 3¢	Perfection\$3.25 square Climax\$3.00 square The Lloyd Spanish Tiling\$1.50 square
b additional.	The Lloyd Spanish Tiling\$1.50 square
0   Brazed Brass Tubing. (100 D lots.)	Metallic Shingles-
(To No. 19 inclusive.)	Cookmants \$1.75 across
Plain, % inch un to 2 inch \$0.35	Cushman's \$1.75 aquare Merchant & Co,'s Spanish Tilea: Copper, 14 Dz. \$36.00 square Tin. \$9.75@\$14.25 square
Plain, % Inch up to & inch 33	Copper, 14 Da
Plain, be inch up to be inch	Steel, painted
Plain, 5-16 inch up to % Inch 48	Steel, paracountry
(To No. 10 inclusivo.)  Discount, 40%.  Plain, 34 inch up to 2 inch	Drain Pipe-Tile.
5 Plain, 3-16 inch up to 4 Inch 1.00	Discount from list705
9 Plain, 2 Inch up to 3 Inch	Paints, Olis, &c
Plain, 3 inch and larger Special.	Deodorized Benzine
5 Bronze and Couper3¢ advance.	Iron Paint, Bright Red 2 b, 2
Roll and Sheet Brass. (160 to lots.)	Brown. Phrple B. 224
Discount, 40%.	Ground in oil, B. Red # D. 6
Clah Snelter-	Ground in oil, Red. W D, 6544
Sian Spector	" Ground in oil, Purple 10, 6
i —	Linseed Oil, Boiled, in pola
	Mineral Paints 2014
00 300 b casks	Orange Mineral 844
Loose sheets	Paints, Olls, &c.— Deodorized Benzine
	Hed Lead American 55(@6)2
80   Soft Pig Lead	Red Venetian, English, dry \$1.65@\$1.70
00 Pipe	Red Venetian in oil; asst'd cans, 8% (
Block Tin Pipe	kegs. 7462 Sipe's Japan Oll. in bbis. F kai 346 Spirita Turpentine, in bbis. F kai 3416 Aspinaltum, Trinidad Refined, F to: 315 Tarred Felt, 1 Ply, F 100 D \$1.50 Turred Felt, 2 Ply, F roll 108 aq
50 Sheet	Spirits Turpentine, in bbls., F gai@3158
Solder	Asphaltum, Trinidad Renned, * top. \$15
Extra Wiping	Tarred Felt, 2 Ply, F roll 108 aq
The prices of the many other qualities of Solder in the market indicated by pri-	Tarred Felt, 3 Ply, Wroll of 108 sq
of Solder in the market indicated by pri-	
on vate brands vary according to composi-	Roofing Pitch, b bbl. of 800 b \$3.00
00 1 500001	

Hallett's1014¢
Wrought-Iron Pipe-
14 and under, Plain
Cast-Iron Soil Pipe-
Cast-Iron Soll-Pipa, Tarred; sizes 2 to 6 inches, inclusive
Leader Pipes-
Abendroth's Galv. Spiral Riveted
Furnace Fittings— Discount from Excelsior Steel Furnace Co.'s list
Steel Roofing-
Perfection
Metallic Shingles-
Cushman's \$1.75 aquare Merchant & Co.'s Spanish Tiles: Copper, 14 0x \$36.00 aquara Tin \$9.75@\$14.25 aquare Steel, painted \$9.00 aquare
Drain Pipe-Tile.  Discount from lat
Paints, Olls, &c.— Deodorized Benzine
LATER A GREEN CONTRACT AND ADDRESS OF THE STATE OF THE ST

# NEW YORK, SEPTEMBER 21, 1894.

The following quotations are for small lots,

Aluminum-
Nn. 1 Aluminum (guaranteed over 98%
pure, in rolling ingots Small lots
100-10 lots₩ 10, 69¢
Ton lots
No. 1 Aluminum (guaranteed to be over
98% pure), in ingots for remelting : 6mail lots
100-₽ lots. : ₩ ₽, 60¢
Ton lots b, 85¢
No. 2 grade (guaranteed to be over 94% pure Aluminum), cast in ingots for re-
melting:
8mall lots 7 m, 60¢
100-b lots
Cockson 104¢
Hallett's P D, 9%¢
Brass-
Planishednet
Planished
Roll and Sheet25@30%
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
List April 9, 1894.
Plain Round Tube. Per D. 1
% (in. up to 2 in
%-In. up to % In
%-in.up to %-in
5 16 in.up to 3, in
3-16-In.up to 1/2 in
34-In.up to 3-16-In
Smaller than Win
2 ln. to 8 in., to No. 16, inclusive, .38 ]
2 ln. to 8 in., to No. 16, inclusive, .28)
2 in. to 8 in., to No. 16, inclusive, .28) Copper and Bronze Tubing— 86 # 5 more than orass.

Conductors-	
Corrugated. Round or Square-	т
Galvanized, Locked Joints. 60% Tin. 60%	G
Spiral Riveted-	
OBlvanized	G
See also Elbows and Shoes; Eave-	-
Trough Miters; Strainers, Conductor.	G
Conductor Strainers—See Strainers, Conductor.	
Copper-	1
Rottoms, Pits and Flats., 13¢ % 2, net Ingot.	N
Lake10%#	1
Lake 10%  Ansubis Grade Arizona 10 #	lò
Ansonia Grade Casting	1
Sheet and Bolt 15¢ & B, net, basis	Z
Tubes - See Seamless Brass	(
Eave Troughs-	١,
	Įĉ
Lap or Sup Joint, Galvaniaed60&10\$ Lao or Sur Joint Terms. 60\$	
Eave-Trough Mitres-	١.
Lap or Slip Joint list, net	Brand Patrick
Elbows-	13
Tin Plain Adjustable-	13
Crimped Tubing-	7
	1 2
Stove-Pipe-	١.
Buffalo Four-Piece.	Ŀ
456 8 656 6 7 lnen, 80.78 .87 .90 .99 1.20 per dos20 \$	Ľ
BO 110	1

tı (	ons are for small lots.
1	Elbows and Shoes-
.	Flat Crimp,
١	Tin
5	Galvanized
6	Corrugated.
6	Galvanized 60%  Sound or Square, 60%
-	Sound or Square.
-	
	Galvanized60*
. !	
8	Iron, Sheet-
	Common R. G. Cleaned
1	Nos 10 to 16 % D. 2.60 2.90¢
	Nos. 17 to 21 & D. 2.70 3.00¢
¢	Nos. 22 to 24 30 B. 2.80 3.10c
đ đ	Nos. 25 and 26 D. 2.10 3.20
ŧ	American. American. Nos. 10 to 16. 12 to 2.60 2.006 Nos. 17 to 21 12 to 2.70 3.006 Nos. 25 to 24 12 to 2.80 3.106 Nos. 25 and 26. 14 to 2.80 3.306 No. 28 10 3.00 3.306
9	American B. B
	R issia, Planished, de.
8	
	Patent Pinnished \$\psi_0. \( \), 10\epsilon; B 44 5\epsilon\$ Cruig Polished Sheet Steel\( \) B 8\epsilon\( \)
\$	Craig Pousied Sheet Steet
8	Galvanized.
	8, 1
ı t	Nos. 10 to 16
2.6	Now 17 to 21
	Nos. 26 to 28
15	No. 27
149	Nos. 26 to 28
18	No. 30
770	Load-
	American Pig3M@33466
	Har 114
*	Pipe 5147 20
-	

Tin Lined Pipe
Metal, Expanded-
Manufacturers' list No. 5.  Latbing
Mitres, Eave-Trough-800 Rave-Trough Mitres.
Paints, Olis &c
Lead, Amn, White, in oil
ipirita Turpentine:
Putty:    In barrels and % bbls
doofing Material, &c.: Asphaltum, Trinidad Refined, # ton. \$30,00@\$35.00
ton
Coal Tar Felt, S Ply, & roll 108 sq. ft.
Roofing Fitch 2 lbl 82.25

Pipe, Drain50s	Yager's Solder;ng Salts.	New Castle Old Method, IC,20x28,18,00	Pontymister old ( 11 x 20,, 6 50 Style Grade, IC, ( 20 x 28,, 13.00
Pipe and Fittings, Cast	%-D bottles, each		Style Grade, IC, 5 20 x 28,, 13,00 1 X, 11 x 20,, 7,50 20 x 28,, 15,00
Iron Soil-	Spelter-	1X, 14 x 20	Worcester Grade, IC, 11 x 5 5.75
Standard "Plpe, 2 to 6 inches65x10% fittings, Pipe. " 65x10x10%	Western Spelter	Neville, 14 x 20 d.(s)  Neville, 16, 14 x 20 d.(s)  1 X, 14 x 20 7 25  Old Colony, 1C, 14 x 20 8, 8 25  Osceola, Hand Coated, IC, 14 x 20, 8 25  Pacific, IC, 14 x 20 8, 5 25	1X, 11 x 29 6 75
xtra Heavy Ploc. " 65 x 10 x 10 z		Pacific, IC, 11 x 20 5.25	10 of cester Grade, 1C, 17 x 35 5.77 5.75 11.50 125 11.50 11.50 125 12
Standard   Fig. 2 to 6 mins   55×10×105     Ittiligs, Pipe   65×10×105     xtra Henvy Pipe   65×10×105     ittiligs, Heavy Pipe   65×10×105     arge sizes of both kinds   65×105     ittiligs for both kinds   65×105	Spiral Pipe - See Pipe, Spiral.	Penns, C. 11 v 20 5.25  Pennsyl Old Method (Treble Coated), IC, 14 v 20 8 (9)  Phomix, IC, 14 v 20 8 (9)  Pullman, IC, 14 v 20 8 (9)  Pullman, IC, 14 v 20 6 (10)  Sectts Extra Cested (Resonared)	[X, 14 x 20,
	Stove-Pipe Elbows-See El-	Pullman, IC, 14 x 20.	Abcrearne Grade.—IC. 14 x 20 5 25
Pipo, Spiral	Stove Trucks - See Trucks,	IC. 14 x 20 0 96	20 x 28 10 50 1X, 14 x 20, 6,40
10	Stove.	IX, 14 x 20 10.75	20 x 2812.80
Rock and Slag Wool-	Strainers Conductor	Taylor's Old Method, IC, 14 x 50 (1955)	Imported Bright Plates—
ag Wool, ordinary14 15# ag Wool, extra44 5854	Jalvanized	Tayte, Old Style , Resquared,, 1C, 14 x 20	Buty , 2.26 W b.
ing Wool, ordinary 134 ing Wool, extra	Tin, Pigs and Bars-	14 x 20	limit Grade, 1C, 10 x 14, \$6.35   IC, 12 x 12, 6.60   IC, 14 x 20, 6.80
OCK WOOL extra75g 4556#	Banca, pigs, & to		ic. 14 x 20, ii. 8.80
Rosin— mmen and Good—Strained	Scratts in pars, & B 180 18-66	U. 8. Monongahela, IC, 14 x 20, 6.10	1C, 20 x 28 12.7( 0 IX, 10 x 14 8.00
osin, C. & D * bbl, \$1,19@\$1.21 osin, E. & F * bbl, \$1,40@\$1.69	Tin Plates-		1X, 12 x 12
Osin, G. & R	American Terne Plates-	Vigilant, IC, 14 x 20 5.50 Westmoreland, IC, 14 x 20 6.25 Willow, IC, 14 x 20 5.25	"   1X, 20 x 28, 10,000   "   DC, 12% x 17   0,00   "   DX, 12% x 17   7,00   Allaway Grade, IC, 10 x 14   5,77   "   IC, 12 x 12   5 86
odin, M. & N	Alaska (re-squared) IC, 14 x 20 \$7,00 Alderly, extra quality, IC, 14 x 20, 87% Allegheny, IC, 14 x 20 5.50 Ex. 12, 14 x 20 5.50 Ex. 14 x 20 5.50 Ex. 14 x 20 5.50 Ex. 15 Ex. 16 E	Willow, 1C, 14 x 20	DX, 12kg x 17 7.50 Allaway Grade, IC, 10 x 14 5.70
eamless Brass Tubesnet	Allegheny, 1C, 14 x 20	American Bright Plates—	" IC, 12 x 12 5 81 IC, 14 x 20 5 71
Shoes and Elbows-See El-	Apollo Roofing, IC, 14 x 20 5.50 1X 14 x 20 6.50	Almond, IC, 14 x 20	" IC, 14 x 20 5.7. " IC, 20 x 28
bows and Shoes.	Atlantie, 1C, 14 x 20. 5.75 Buckeye, 1C, 14 x 20. 7.00	BrooklyB, R, 11 x 20 5.50	125, 14 8 12 7.2
Slate Roofing-		" IX, 11 x 20,	IX, 20 x 28 14.0
scording to size, f.o.b. cars, Quarry Station.	Central, 1C, 11 x 20 5.57 Climax, 1C, 14 x 20 5.50 Commbia, 1C, 14 x 20 6 25	IX, 14 x 20	DC, 121 x 17 5.50 DX, 12 x 17 6.50
emmeulences in 4		Climax, IC, 11 x 26	Coke, Steel Coke.—IC, 10x14, 14x20 5,88
en Argyle, # sqr 3.70@ 4.00	Dane, IC, 11 x 20 5.50  DeMilt's First New York, IC, 14 x 20, 6.75  First New Jersey, IC, 14 x 20, 5.50	" 1X, 14 x 20	10x208.21 20x2811.00
88: Bangor, ¥ sqr. \$8.25@\$4.50 Pen Argyle, ¥ sqr. \$7.02 4.00 Peach Bottom, ¥ sqr. \$7.06 5.60 Yo. 1 Chapman, ¥ sqr. \$1.90% 4.25 Lehigh Slates, ¥ sqr. \$1.90% 4.25	" First New Jersey, IC, 14 x 20 5.50 " Mohawk, IC, 14 x 20, 5.50	Iona, IC, 14 x 20 5.75	IX, 10x14, 14x20 6.6 B. V. Grade.—IC, 10x14, 14x20 5.44
rmont;	Mohawk, IC, 14 x 20 5.50  Dunlap's houble Dipped, IC, 14 x 20 8.25  IX, 14 x 20 9.50	Linden, IC, 14x20	Imported Boller Plates - IXX, 14x28(112 sheets)
lea Green, ₩ sqr 2.50@ 2.75 Purple, ₩ sqr S.50@ 4.50	" Domestic, IC, 20 x 28 12,00 12,00 12,00 12,00 12,00 12,00 12,00 12,00 15,00	11000	IXX, 14x28, (112 sheets)
Infading Green, ₩ aqr 3.50@ 4.00	Empire, IC, 14 x 20 5.75 Exectsion IC 11 x 20 5.75	New Castle Best Palm, Chargoot	
arple, ¥ sqr	Fing. IC, 14 x 20 5, 25 Flushing, IC, 14 x 20 7,00 Freeport (Hand dipped and Resquared).	1C, 11 x 20 7.00 1X, 14 x 20 9.00	Tinning- Brass and Copperae
Fluida-	Freeport (Hand dipped and Resquared).	New Castle Palm Charcoal, 1C, 14 x 20,, 6,50 " 1X, 14 x 20 , 8,60	Tubing-
Solder-	IC, 14 x 20	1X, 14 x 20 8.60 New Castle, Charcoal, F , 14 x 20 625 1X, 14 x 20 7.50	Tin
104	Globe, IC, 11 x 20		Brass and Copper.—
inds vary according to composition.	Hamilton's Best Redipped, IC, 14x20-9.25 IX, 14x20-10.75 Hickory (Resquared), IC, 14-x 20-8-124 Lyndon, IC, 20-x 28	1X, 14 x 20, 7, 25 New Castle Palm Coke, IC, 14 x 20, 5,75 IX, 14 x 20, 6,85	Troughs, Eave - See Eave _ Troughs,
Soldering Fluids-		New Castle Coke, IC, 14 x 20, 6,85	Trucks, Stove- Improved Lock Frame, per doz \$15.00
Concentrated Soldering Flux.	Juno, IC, 14 x 20. 5,75 Keusington, IC, 14 x 20 6,75 "IX, 14 x 20 8,00	New Castle Coke, IC, 14 x 29, 0, 88  New Castle Coke, IC, 14 x 29, 5, 50  Palma, IC, 14 x 29, 6, 60  Phonix, IC, 14 x 29, 6, 25  IX, 14 x 29, 7, 25  IX, 14 x 29, 7, 25	Improved Lock Frame, per doz \$15.06   Steel Lock Frame, per doz 18.44
f.o.b. New York. barrels, # D	Knoxall, IC, 14 x 20 Laufman's Apollo (Resquared), IC,	Phoenix, 1C, 14x20	Steel Lock Frame, per doz 18.00 Daisy Improved Pattern, ₩ doz 18.00
Gedney's Soldering Fluid.	Laufman's Apollo (Resquared), IX, 9.37		Wrought Iron Pipe-
	14 x 20	U. S., IC, 14 x 20 7, 25 Versailles, IC, 14 x 20 5, 75 Youghlogheny, IC, 14 x 20. 6,00	Wrought Iron Pipe— 12 and under, Picht
11.50 for carboy or barrel; money re- nded when returned.	Leominster, Extra Coated, IC, 14x20 7.25 Lion (Stamped), IC, 14 x 20. 6.25 Lula, Best Charcoal, IC, 20 x 28. 12.50		184 and over, Galv 08 10853 8 and over, Galv 08 10853 Boller Tubes, list Oct. 21, 18s2, 70&10&65 Casing, list Nov. 16, 1832, 5250 1882, 4764
Perfection Soldering Flux.	Luia, best Charcoai, IC, 20 x 28,12.50 IX, 20 x 28,16.00	Imported Terne Plates-	Casing, list Nov. 16, 1892
No charge for package.	Manhattan, IC, 14 x 20	Charcoal.	Steel Botler Tuties 47368
bbia, about 300 b. * b	Merchant's Roofing (Resquared), IC, 14 x 20.	MF Grade, IC, 14 x 20	
bla, about 500 b, \$ b	IC, 14 x 20. 8.25 Meurer Roofing, IC, 14 x 20. 8.50 IX, 14 x 20. 10.50	1X, 14 x 20	Zinc-
	, 17 & 20 10.5()	20 x 4817 50	Per ⊅51/g#

# It Is Reported—

Alabama,

That the TROY Hardware firm of J. B. Wiley & Co. have been dissolved, W. S. Coleman withdrawing from the firm and selling out his interest to J. B. Wiley.

Arkansas.

That J. M. Smith, Stoves and Hardware, BROOKLAND, has been succeeded

by Smith & Barber.
That E. P. Zackery, Stoves and Hardware, LACEY, has sold out to Sherwood Baker, who will continue the business.

the business.

That A. O. Young, dealer in Hardware and stoves, Nebo, has sold out to Young & Webb.

That M. E. Coffin & Co. have succeeded G. L. Coffin in the Hardware and Stove business at Swifton.

That the partnership under the style

That the partnership under the style of Moore Bros. & Co., Hardware and Stoves, Hot Springs, has been dis-solved. Moore Bros. are successors.

California.

That J. S. Jack's Hardware store, at ANGEL'S CAMP, has been burned out.

Colorado.

That the Dewey Hardware Company, DENVER, have been incorporated, with a capital stock of \$7000.

Florida.
That on October 1 Steenburg & Thomas of Gainesville will transfer their Heavy Hardware business to E. Baird & Co., and in the future they will confine themselves to retail city trade. W. B. Taylor, who has for some years been buyer for Steenburg & Thomas, has been engaged by E. Baird & Co. in the same capacity. Georgia.

That Thomas Berry has sold out his interest in the Terhune-Berry Hard ware Company, Rome, to George and Pennington Nixon, formerly with

That A. B. Handley & Co., dealers in Hardware, La Grange, have dissolved, J. E. Jones retiring. G. E. Hansom will continue the business.

Illinois. That William McNeill, Hardware merchant, of Prophetstown, has com-menced the erection of a two-story brick building on the site of his former warehouse, and when completed will occupy the building with his stock. The building will be finished, it is thought, about December 1.

That Reed & Heine have bought the Yurs & Holland Hardware stock, at ELGIN.

That a new Hardware store will soon be opened in SMITHSHIRE by Mr. Birdsall

That after 28 years of continuous business in Malta, G. W. Smiley has sold his Hardware and Agricultural Implement business to his son, R. B. Smiley. The former will retire from active business.

active business.

That Frank and Thomas Shannon purchased the C. E. Olinstead stock of Hardware, at Milledgeville, and took possession on September 1.

That Reynolds & Hartley have sold their Hardware business, at GENEEO, to J. P. Couran of Western Numbers.

to J. P. Cowan of Western Nebraska, who will be assisted in managing the business by W. O. Misner from the same section.

That the Hardware firm of Bigler & Danahy of AURORA have dissolved, Mr. Danahy having purchased his partner's interest in the business. Mr. Bigler will continue in charge of the business for the present as heretofore.

That the business portion of Malta That the business portion of MALTA was swept by fire on the morning of the 8th inst. Among other business establishments destroyed was the Hardware store of C. W. Haish. The fire originated in Mr. Haish's store, which had been struck by lightning.

That D. B. Keigheir of KEMPTON has bought the stock of Hardware lumber, &c., of I. A. Goodman in Cabery.
That W. P. Handel's Hardware

store, at Roberts, has been destroyed by fire.

Indiana.

That L. M. Fishbaugh has purchased a half interest in Wm. Cover's Hard-

ware business, at Markle.
That Willis P. Maine, dealer in Hardware, Indianapolis, has sold out. lowa.

That burglars entered the Hardware store of A. O. Rudolph on the 28th ult., and carried off a large quantity of knives. Razors and Revolvers. About \$250 worth of goods were secured. There is no clue to the thieves.

That V. S. Bomboy of the firm of Bomboy & Alcorn, Bancroff, has sold his interest in the Hardware business to W. W. Alcorn, who will continue at the old stand.

That J. B. Hathaway & Co., in the Hardware business at Alpha, have been succeeded by Davis Bros. That a new Hardware store is being

established at Sioux Valley by Mr. Frerichs of ALVORD,
That Stewart Bros., Keota, are re-

moving their Hardware stock to their new brick building.

That Joseph Gross is preparing to start a new Hardware store at Cres-

# EXGHANGE. LABOR

Notices under this heading of reasonable length are inserted free of charge. Only those relating to employment are admitted. Write distinctly on one side of paper only, and do not use postal cards.

### HELP WANTED.

A TRAVELING SALESMAN in the New England States, by a Western house, to market a new line of Franklins; must have a thorough acquaintance with the trade in that section." Franklin," office of The Metal Worker, 98-102 Reade street, New York City. Sept. 22

TRAVELING SALESMEN to bandle as side line, on commission, staple specialty in tin and copper, already introduced; excellent seller. "Tin and Copper," office of the Metal Worker, 250 South Fourth street, Philadelphia, Pa.

TRAVELING SALESMEN to handle metal rooting as a side line; liberal commissions on sales. Box 338, Pittsburgh, Pa. Sept. 22

A SALESMAN for New York City and vicinity trade by a Western house located in New York. None but a thoroughly experienced man with acquantance with this trade need apply. "Hustler," office of The Metal Worker, 9-102 Reade street, New York City. Sept. 22

A first-class TIN and SHEET IRON WORKER, at Suydam's, 550 Hudson street, New York City. Sept. 22

A first-class STOVE REPAIRER, at Suydam's, 550 Hudson street, New York City. Sept. 22

A young man to drive borse, deliver and put up stoyes, at suydam's, 550 Hudson street, New York City. Sept. 23

A first-class TRAVELING MAN who has had experience in selling gasoline stoves for n first-class manufacturer. "Gasoline," No. 115, office of The Metal Worker, 96-102 Reade street, New York City. Sept. 15

An experienced FURNACEMAN and TIN-NER, one that can set and complete a furnace without making mistakes. W. F. Stoetzel, Omaha, Neb. Sept. 15

Omana, NCO.

An English firm of wronght hollow ware makers and enamelers require in experienced FOREMAN; must thoroughly understand pressing, spinning, beading (lathe and press); also making up; Midland Counties; apply, stating wages required, references, &c., Ironmonger office, 42 Cannon street, London, England.

Sept. 15

## SITUATIONS WANTED.

As CLERK or SALESMAN for some first-class AS CLERK OF SALESMAN for some first-class bardware, tin or stove house; understands stove business from A to Z and qualified to fill any of the above positions, or will travel, "Clerk or Salesman," office of The Metal Worker, 96-16? Reade street, New York City. Sept. 22

By a married man, as TINNER and SLATE ROOFER; can do any ordinary work in connection with these trades; am 25 years old; stendy work wanted; state wages, size of town, &c. Box 7, Utlea, Ohio. Sept. 22

By a practical TIN and SHEET IRON WORKER; 18 years' experience; accustomed to furnace, range, stove and all kinds of tin rooling, gutters, pumps and iron pipe work; experienced on all kinds of tin and sheet iron jobbing; steady position desired; strictly temperate; references, "Furnace," office of The Metal Worker, 98-102 Reade street, New York City.

Sept. 22

By a young all around TINSMITH and RODFER; can do pipe fitting, pump work and all work that comes to a country shop; Long Island preferred. Box 31, New Hyde Park, Queens County, L. I. Sept. 22

By a good ROOFER and TINSMITH; willing to work. Max Neumerkel, 498 Grand street, Hoboken, N. J. Sept. 22

By a young American mechanic (age 22); fair joint where, graduate of '84 of New York Trade School; wages reasonable; strictly reliable; would like position to learn the particulars of ruffing in and to advance. Burton C. Beach, Greene, Chenango County, N. Y. Sept 22

By an experienced GALVANIZER, competent to do or take charge of any kind of work; last position, running a large sheet iron plant. "Galvanizer," office of The Metal Worker, 48-102 Reade street, New York City. Sept. 22

By an experienced GALVANIZER; married and soler. H. W. Wilkins, Wheeling, W. Va. Sept. 22

As SALESMAN, by a Hardwareman; 20 years' experience in shell and heavy hirdware, iron

First-class TINSMITH for inside and outside work, also good jobber in plumbing, gas fit-ting; &c., wants work; city or country. Henry Roscubleom, J Forsyth street, New York City,

A PLUMBER of three and one-half years' experience in city; can do tin work and general jobbing; wants situation under instructions for one year. "Plumber," care of W. F. Findley, 66 Summer avenue, Newark, N. J. Sept. 22

A young mao, 18 years of age, three and a half years at the stove, range and furnace trade; would like a position in the vicinity of New York City where he can live with his employer, address George F. Merz, 1324 Gates avenue, Brooklyn, N. Y. Sept. 15

By a good MACHINIST and ENGINEER; understands metal work; also mill stone sharp-ener; steady position desired; city or country; would go as helper to an engineer. M. Bersunsky, 1797 Third avenue, New York City.
Sept. 15

As BOOKKEEPER and CORRESPONDENT.
CASHIER or TRAVELING SALESMAN; married man, age 3t, wants responsible position; ten years' experience in office, six years traveling through the United States, Canada and Great Britain; acquainted with stove and hardware trades, also tin, brass and copper sheet metal manufacturing; fully competent to take entire charge of a manufacturer's office, or that of large wholesale or retail dealer; locality no object, will settle anywhere; seven years present position; Al references; moderate salary. Wm. A. Langford, Lawrence, Mass.

By a young magnied man who has had 13 years'

By a young married man who has had 13 years' experience at the TIN TRADE; can do inside and outside work, such as routing, guttering, furnace work, &c; good reference. "W. R.," 126 Stonewall street, Atlanta, Ga. Sept. 15

As FOUNDRY FOREMAN, by a practical stove plate and bench molder, who has had long experience as foreman in the above kind of foundries; competent in bandling men, melting and all modern foundry practice; strictly temperate; first-class references and recommendations from past employers Western," office of The Metal Worker, 59 Dearborn street, Chicago, Ill. Sept. 15

By a BOOKKEEPER who has during the past By a BOOKKEEPEN who has during the past 12 years held a position of trust in a New York wachinery store, also a fair knowledge of the store business, to obtain a situation in a store store; would be willing to work at first on small wages. "E. P. M.," Post Office Box 390, Westville, Conn. Sept. 15

By a first class TINSMITH, ROOFER and GENERAL JOBBER; capable of doing heater and range work; 12 years' experience in Germany and live years in this country; city or country. John Klein, 616 Fulton street, Elizabeth, N. J.

By a GENERAL ROOFER and PRACTICAL MECHANIC; thoroughly understands all branches in the roofing line, and is capable of doing all kinds of roofing; first-class reterence; wages moderate for steady job to any firm desiring an #01-around worker. Ed. Murphy, Governor's Island, New York. Sept. 15

By an expert brakeman who is a first-class in-side corniceman; best of references. "Cornice." office of The Metal Worker, 59 Dearborn street, Chicago, Ill. Sept. 15

By a first-class TINSMITH and PLUMBER; 14 years' experience; can also do steam and hot water heating; strictly sober and industrious; good reterences; steady position desired; state wages. "D. J. B.," 12 Coffin street, Glens Explay N. Scott 15

By a TINSMITH; a practical all-around mechanic, thoroughly competent of taking charge of shop, steam and hot water heating, with some knowledge of plumbing; New York or Eastern States. J. H. Gravette, Kingston, N. Y. Sept. 15

Sept. 15
By a practical all around MECHANIC, with
20 years' experience in designing metal patterns, dies, tools, jigs, &c., to manufacture patterns dies, tools, jigs, &c., to manufacture pattented hardware and specialties in malleanic,
gray from and brass; mice years' experience as
foreman; good reference. "Mechanic," 263
Twenty-sixth street, Chicago, III. Sept. 15
By a young man as 4014 MINESP.

Twenty-sixth street, Chicago, III. Sept. 15

By a young man, as PLUMBER; city or country; wages moderate. Oscar Bornann, 125 second avenue, New York City. Sept. 15

By an experienced MILLING MACHINE AXLE TURNER. II W. Wikins, 23 Ohio street, Wheeling, W. Va. Sept. 15

By a TIN and SHEET IRON WORKER; 16 years' experience; understands all kinds of outside work, guiters, roofing, furnace, stove,

and tinners' stock. Address "Storrs," office of Trange and fire place heater work; also have had Some experience in steam fitting; first-class tereince furnished if desired. I. D. Woodward, 51 Chester avenue, Newark, N. J.

As SALESMAN on the road for some first-class house for tin-plate and tinners' supplies; good reference. "F. L. W.," 64 Henry street, Lexington, Ky. Sept. 15

As FOREMAN, by an experienced man, capable of managing a tin house; 15 years' experience in the manufacture of tin and terne plate in South Wales and this country, or will take a job as tinman and washman; first-class references given. "Tia," No. 915, office of The Metal Worker, 98-102 Reade street, New York City.

As SUPERINTENDENT, FOREMAN or CUT-Telt in cornice works; 25 years' experience; can estimate; good reference. F. V. Emery, 1308 Henniken avenue, Minneapolis, Mian. Sept, 15

By a TIN and SHEET METAL, WORKER; can put in pumps and mend mills and set up tarm machinery; fully capable of doing all work in the shop and store; good references; strictly temperate; not big wages but a steady job desired; will come on trial. Lock Box 21, Morathon, Iowa.

PLUMBER wants work, city or country; first-class mechanic; able to figure on and take charge of work. Al. Chandler, 277 West 127th street, New York City. Sept. 15

PLUMBER; young man having five years' experience wants position; city or country. D. H. Wright, Jr., Box D, 413 West 125th street, New York City. Sept. 15

By a young married man, as TINNER; experienced on inside and outside work; understands furnace work; can figure on jobs; a histler in every way; can furnish a complete set of tools; speaks German. Box 171, Garrett, Ind.

By a STEAM and HOT WATER FITTER, who By a STEAM and HOT WATER ETTLEM, who can also do plumbing, hot air work and a good job at tinning: 18 years' experience; good habits; man with family; permanent position desired; reference. "R.," Box 775, Hooa, N. Y. Sept. 15

By a young man 24 years of age in a good country tin shop; best of references D. Watts Port Jervis, N. Y. Sept. 15

By a man who works for the interests of his employer; 20 years' experience at tin, sheet fron furnace work, and country plumbing; has always given satislaction to employer and customers; sober and reliable; can give best of references. G. N. Smith, Zcutsville, Otseyo Country, N. Y.

By a first-class PLUMBER; one who is thoroughly acquainted with all branches of the business; can estimate and furnish specifications, handle men or take entire charge of business; best of references furnished. "F. M.," nihee of The Metal Worker, 98-102 Reade street, New York City.

By a TINNER, in shop where first-class plumbing is done; will work cheap while learning the plumbing trade. 320 Federal street, Camden, N. J. Sept. 15

By a SALESMAN thoroughly acquainted with the furnace and range trade; can estimate from plans, lay out work, &c. "C. L." office of The Metal Worker, 98-102 Reade street, New York City.

A graduate of the Master Bullders' Exchange Trade Schools, who has had two years' experi-ence at plumbing and fitting, desires a position under instructions; can turofish reference, &c.; willing to go anywhere. Samuel E. Draves, 1032 Fernon street, Philadelphia, Pa. Sept. 8

A married man; first-class MECHANIC in all branches of the tinner's trade, also pumps, from pipe work, joobing, plumbing in country or city; steady, sober workman; wanta work by the year; best of references J. Wallace, Finshing, L. L., N. Y.

As MANAGER or ASSISTANT MANAGER in a tin plate works by a party tully competent to pan and superint-nd creetlon of plant and machinery and manage same when completed. "Manager," office of The Metal Worker, 98-102 Reade street, New York City. Sept. 8

Reade street, New York City. Sept. 8
By a young man as CLERK in hardware or
stove store; understands bookkeeping, figuring
tin shop work, &c.; have had four years of
solid experience as confidential clerk in a New
England town and understands the business.
W. E. Lindell, Danielsville, Conn.
Sept. 8
By a TINSMITH: German; 17 years at trade;
good at in and outside work, furnace, heater,
range and general jobbing; fair knowledge of
hot water heating and plumbing; not afraid to
take hold of any job; can give reference from
hast employer as to ability. &c.: would like
steady position. W. Hammergen, 731 Dean
street, Brooklyn, N. Y.
By a PLUMBER; city or country; best of

By a PLUMBER; city or country; best of references furnished. Thomas White, 300 East Fifty-eighth street, New York City. Sopt. 8

# THE METAL WORKER.

# NEW YORK AND CHICAGO.

Saturday, September 29, 1894.

DAVID WILLIAMS, - PUBLISHER

#### BUSINESS OFFICES:

NEW YORK	
PHILADELPHIA	220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBURGH	Room 509 Hamilton Building.
CHICAGO 59 Dec	arborn Street, cor. Randolph.
CINCINNATIRo	oms 22-24 Pickering Building.
ST. LOUIS	Bank of Commerce Building.
CLEVELAND	

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

## The Legal Aspect of Ventilation.

In times past the quality of ventilation has been determined by the desires of those who directly introduced or controlled it, but to-day legislative action is gradually leading from desires or whims to laws. It is no longer a question as to what a man thinks is good enough or cheap enough in the way of ventilation, but rather what the law says he must do regarding it. The State of Massachusetts began in 1888 a serious consideration of this subject and passed certain laws, requiring "proper" ventilation, but wisely no further defining as to the exact amount of air to be supplied per person, appointing furthermore State inspectors, independent of local boards of health, who should enforce the law. Lack of specific requirements for proper ventilation under the law threw upon them the burden of determining what should be understood by the term "proper ventilation." And wisely again, rather than attempt an extremely radical departure, they adopted the standard of 30 cubic feet of air supply per minute per person as necessary to fulfill the requirements of the law as they proposed to enforce it. This, while well in excess of the degree of ventilation then being secured in most buildings, was reasonably simple of accomplishment.

### Laws Defining Air Supply.

Slight changes have since been made in those laws, and last year in the new building laws of the city of Boston an attempt was made to clearly specify the exact amount of ventilation by requiring 50 cubic feet per head for each occupant and for each gas light. But, through the clerk's or the printer's mistake, a certain ambiguity exists in the law that practically makes it a dead letter—at least in certain known cases the inspector-in-chief has so chosen to consider it. This example of the State of Massachusetts may well

be followed by others that have as yet given no consideration to the subject. Although there was at first some opposition to the law in Massachusetts, its judicious enforcement has brought about good feeling and a readiness to comply with it that has been the best evidence of its success. It is a work that must be done gradually, the people must be educated up to it and the standard raised by degrees, until results may be assured that will fulfill the requirements of the most ardent supporters of the laws demanding "proper ventilation."

#### New Tin Plate Works.

During the past week or two numerous stories have been afloat respecting the establishment of new tin plate enterprises. Some of these are rumors of the vaguest sort, others are well founded reports of contemplated work, and still others relate to actual operations begun. Without trying to determine what has concentrated this activity apparently within so short and so recent a period, there are certain lines of thought suggested by this special activity that are interesting to follow. A satisfactory feature attaching to many of the reports is that they are coupled more or less directly with the names of large iron and steel making concerns. In a few instances the concerns are directly interested in the tin plate works, but in most cases the relationship is an indirect commercial one. The big steel works of the country which formerly depended for the consumption of their product on the demand for steel rails, structural materal and the like are becoming anxious for the future disposition of their enormous tonnage. For this reason they are taking up, or rather encouraging, various side enterprises, and the latest direction to which some of them have turn-d their attention is the manufacture of tin plates. We know an instance of a prominent steel works who are now negotiating with capitalists for the erection of tin plate works in the neighborhood of their plant, guaranteeing them steel at a certain low figure for a term of years. The steel works are among the most prominent in the country and the tin plate concerns that will feed upon them are being pushed by men of enterprise and ample capital.

# The Interest of Steel Makers in the Industry.

A single tin plate is a small piece of steel, but when the total consumption of the country is taken into consideration, the number of tons of metal that it represents is not inconsiderable. Assuming that the domestic consumption of tin plates is a quarter of

a million tons a year, it will be seen that the Bessemer and open hearth steel works can afford to cater to the tin plate mills, provided they will guarantee to use a sufficient quantity of steel. It would be inexpedient for the big steel works to manage their own tin plate mills. To do so they would have to put in sheet mills, and then attend to all the troublesome and delicate work of dipping, not to mention the extra labor involved in disposing of the finished plates. The end that they have in view is the establishment of independent tin plate works in their vicinity, to whom they can supply steel in the form of billets, or in some cases rolling them down to tinplate bars. The tin works have their own rolling mill plant for reducing steel to sheets, and their dipping works for putting them into the marketable form of tin plates. The present condition of the steel trade and the interest shown in the tin plate business by the steel manufacturers is, if not a guarantee, at least a good augury for the continued progress of the American tin plate industry. The price of steel now is almost on a parity with the Euglish market, and if the American manufacturer can get his black sheets even approximately as cheap as the Welshman buys his, there is not the shadow of a doubt but that the American works will prosper.

## Pattern Cutting Class at the Pratt Institute.

The new class in sheet metal pattern entting in connection with the trade school of the Pratt Institute. Brooklyn, was mangurated on Monday, September 21, with 13 scholars. Prof. C. R. Richards of the institute informs us that there is still sufficient room in the class for a few more students, and that he will be willing to receive applications from candidates up to Saturday, October 6. The class starts with every prospect of success. It is under the supervision of Louis Rouillion, one of the staff of the Department of Science and Technology of the Pratt Institute. The course will consist of four threemonthly terms, which will run concurrently with the regular trade school sessions. A fee of \$5 will be charged for each term, all tools and instruments being provided. It is proposed to pursue a thorough system of instruction in pattern cutting and every branch of sheet metal work.

English journals credit Hiram Maxim with the statement that, given the sum of \$250,000, which he estimates to be the cost of constructing a practical air ship, he will undertake to cross the English Channel by its means before August 31, 1895.

# THE LETTER BOX.

# Plumbers' Examination Questions.

From B. S. J., Charleston, S. C.—Will you please publish the questions asked by the Examining Board of Plumbers of New York and other cities.

Note .- If one set of questions were used exclusively little difficulty would be found in providing answers, so that any one could pass the examination. In The Metal Worker, November 25, 1893, there was a letter from a New York plumber who had kept a list of the questions that were given to him, and on December 30, 1893, were the questions asked at one of the London institutes. These questions attracted considerable attention among the younger plumbers at the time, and caused them to study the subject suggested by each one. We will be glad to hear from other plumbers who can give the list of questions that were asked of them.

# Furnace Experiences.

From R. C. L , New York .- Before this winter is through the skill of many a furnaceman will be taxed to overcome some of the troubles that will be brought to him, and I give a few incidents from my own experience that may prove useful. I was called to remodel a furnace job where the walls of the house were elegantly papered and a handsome cornice was at the edge of every ceiling, all of which had been put up before consulting the furnaceman. I found the pipes from the furnace too small and many of the registers only fit for bathroom use. The wall flues, lined with tin, seemed to be of good size, and when I got through I thought I had a good job. When the first cold weather came I was sent for and found that the dining room and the chambers over it on the second and third floors were quite cold. I investigated the flue more thoroughly and found it but 4 x 9 inches in size, and that the lining had rusted so that it had fallen apart and obstructed the flue. I knew such a flue was too small, but cutting the walls was out of the question. With much difficulty I relined the flue up to the dining room register and placed an air chamber 2 x 2 x 2 feet in the cellar at the base of the flue, and connected the flue at the top. I fed the chamber with a 14 inch pipe from the furnace, then made an air chamber at the register on each floor by taking out the register and cutting into the wall until there was an 8 x 18 inch enlargement 2 feet high. I then put a larger register in the main hall and fed it with a larger pipe. I never heard any more complaints from that job and I was well pleased with the results attending the use of air chambers. I have found furnaces that failed to properly supply all of the hot air pipes, even when the latter had a good pitch and the furnace was amply large. The trouble was due

to a lack of air chamber at the top of the furnace. By reducing the pitch of the pipes and raising the top of the furnace so as to provide an ample air chamber above the drums or radiator, I have secured a good flow in all of the pipes. Sometimes I have had to take the furnace down and dig out the cellar to make room for an air chamber at the An air chamber at the bottom is top. just as essential when the air comes from out of doors through a duct. I have found a good sized air duct, say 15 x 30 inches, led into a hole scratched -not dug-under the furnace that would not permit half that amount of air to enter readily; then the cellar is hot and the house is apt to be cool in some rooms. In order to prevent a waste of heat in the cellar I have put the heat pipe inside of another tin pipe which I run clear to the register. riveted tin extensions on the inside pipe to hold it central in the outer pipe. The result is all that could be desired, but the cost and labor of putting up is I find that a good, thick too great. I find that a good, thick fire proof felt costs less and is much easier put on, beside rendering quite as effective service in heat saving.

## Air Bound Pipes.

From O. B., New York.—Can you explain why hot water failed to run from the faucets in the system shown in the diagram herewith? When a pump was put on the supply to the boiler it was found that the pipes were not stopped up, but the water only run for a short time.

Answer .- The diagram of our correspondent has not been reproduced, as it shows a supply tank located only a few inches above the top of the boiler, thus giving but very little pressure. The pipes from the boiler turn down immediately after leaving it and run to and under the floor to the fixture. This arrangement makes an air trap in the piping at the top of the boiler, and the water pressure is not sufficient to overcome it. This trouble is not uncommon and can be removed by running a small pipe from the top of the air trap to the tank and turning the end over it. This will allow both air and steam to escape and avoid further trouble.

# Wiplng Solder for Tin Lined Pipe.

From Plumber, Peekskill, N. Y.—I would like to hear from the readers of The Metal Worker how to mix solder for wiping joints on tin lined lead pipe.

Note.—Any answers to this correspondent's query will be gladly given, but in the meantime the following information may be acceptable. As tin lined lead pipe is largely used for beer pumps and soda fountains a visit to the plumbers in these establishments finds

them using ordinary wiping solder and finer solder up to half and half according to their quickness in wiping a joint. In preparing the pipe for the joint common brown paper is rolled into a cylinder and slipped inside of the pipe to support the tin should it become overheated. The paper dissolves readily and is easily washed out of the pipe. A special solder that melts at a low temperature can be purchased of the Colwell Lead Company, 63 Centre street, New York. Solder composed of two parts of tin, two parts lead and one part bismuth melts at 290°, and one part tin, one part lead and one part bismuth melts at 250°. Half and half solder melts at  $330^{\circ}$ , while tin melts at  $440^{\circ}$ .

# Blanks for Contracts and Orders.

From J. M. H., Pennsylvania.-We have a great many disputes and lots of expense with people who make contracts and then change their minds, thus making their work cost us more to do it. We send our plumbers out and make contracts; then some other plumber comes along and upsets the whole We want to get some kind of a thing. contract book or blank which will enable us to bind our customer to the contract made, and will he glad to receive any help that will get us out of our trouble. We sell a general line of goods, as well as doing plumbing work, and have trouble with things which are or dered of some special kind by our customers, and three times out of six they are wrong.

Note.—In The Metal Worker of April, 1892, some forms of estimating blanks were given that might be useful to this correspondent, and during February and March of this year some suggestions were given for keeping account of stove repairs ordered by customers that may be useful. The subject is of interest to many of our readers, and we hope it will be freely discussed in the Letter Box.

# Sims Patent Gutter.

From W. J., Ridgedale, Tenn—Can you give me the address of Sims, the patentee of the Sims patent gutter, or of some one who has the right to manufacture that gutter?

Note.—If any reader of The Metal Worker can furnish the above address, the favor will be highly appreciated.

The longest distance message ever flashed by means of the heliograph was sent from Mount Uncomphagre, Col., and read at Mount Helena, Mont., lately, the two places being 183 miles apart. The feat was accomplished by Capt. W. A. Glassford, United States

# ROOFING AND CORNICE.

# Non-Condensing Corrugated Steel Roofing,

A new form of steel roofing has been put on the market by the Non-Condensing Corrugated Roofing Company, with office at 143 Liberty street, New York. The special feature of the roof is clearly indicated in the accompanying engraving, which shows a section of the material. It is described as non-condensing, fire proof and rust proof corrugated ateel roofing, and consists of corrugated sheet steel with a fire proof lining, firmly secured to the sheets by a special process, making, it is claimed, a perfect attachment to the metal. When used for roofing or siding it is put on in the same manner as ordinary corrugated iron directly upon the rafters or studding, and forming, it is said, a perfect and reliable protection, preventing sweating and the condensation of moist-

the Illinois Chapter of the American Institute of Architects. This concern have recently added another improved machine to their plant, making the third since they started in business three years ago.

SMITH & LEVERENZ, 9146 Houston avenue, Chicago, have contracts for the slate and cornice work for the residence of John Lorscheider, Ninety-third street and Garvin avenue; store building of Wm. Rundel, Ninety-seventh street and Commercial avenue; flat building of A. Wessberg, 9039 Superior avenue, and flat building of D. Sparrow, 9120 Eric avenue

Incensed by frequent interruptions of work, owing to strikes, and by the domineering spirit exhibited by the walking delegates of the various labor unions connected with the building



Non-Condensing Corrugated Steel Roofing.

ure or vapora of any kind, which have a destructive effect. It is alluded to as specially adapted for covering gas works, railroad stations and shops, power houses, warehouses, chemical works, machine shops, stables, &c. A sample of the roofing shows the lining to be \frac{1}{5} inch in thickness and firmly fastened to the metal.

#### FLASHINGS.

THE JERSEY CITY GALVANIZING COMPANY, 112 John street, New York, are sending out their 1894 catalogue with a discount sheet. In addition to doing all kinds of galvanizing work on wrought and cast iron and sheet metal they handle a large line of galvanized sheet metal goods. A few of their specialties are leader pipe and adjustable elbows, stove pipe and elbows, ventilators, chimney caps, corrugated sheetiron siding, ridging and solder.

THE PLANT of the Youngstown Iron & Steel Roofing Company, Youngstown, Onio, has been completed and the machinery was put in operation last week. The works are located near the plant of the Andrews Brothers Company, which concern will furnish the iron and steel sheets to the new firm. As previously announced, the new concern will manufacture iron and steel roofing of all kinds under patents granted to John O. Pew, general manager.

THE BOSTWICK STEEL LATH COMPANY, Niles, Ohio, have received a medal and diploma from the first annual Chicago Building Trades and National Exhibition, hald under the auspices of

trades, 120 firms engaged in various branches of building in New York City formed themselves last week into a Building Trades League. They have mutually resolved to employ in future such men as they please, whether the men belong to labor unions or not.

The London Statist publishes an authoritative estimate placing the world's coffee crop of 1894 at 12,500,000 bags, the largest in the history of the trade. As the maximum consumption of coffee is 10,500,000 bags the Statist thinks that a crash in the coffee market is in order next apring.

The President has signed an act aulhorizing the construction of a bridge across the Mississippi River from a point within the city of Dubuque, Iowa, known as Eagle Point, to the opposite bank of the river in Grant County Wis.

After the forest fires another element has been devastating some of the Western States. Northern Iowa and portions of Minnesota and Wisconsin were awept on Saturday by a terrific tornado, causing immense destruction of property and lamentable loss of life. Houses, barns, live stock, orchards and crops have been destroyed and great suffering imposed on the people.

Statistics prepared by the Comptroller of the Currency show that the national bank circulation of this country is now nearly \$4,000,000 greater than it was a year ago.

Weight and Horse-Power of Rain.

The following interesting calculations were presented before the Eugineers' Club of Philadelphia

One inch of rain falling upon an area of 1 square mile is equivalent to 2 323,-200 cubic feet, or nearly 17,500,000 gallons, and this quantity of water will weigh 145,200,000 pounds, or 72,600 short tons. If 1 inch of rain fell over the entire area of the city of Philadelphia, 129 square miles, the quantity of water which would be precipitated would be represented by 1,250,000,000 gallons, or 18,730,000,000 pounds, or 9,365,000 short tons. Therefore the quantity of water represented by 1 inch of rainfall distributed over 24 hours falling upon the area of Philadelphia would be nearly ten times the maximum pumping capacity of all our water works engines for a day, and is more than twice the total capacity of all the reservoirs now connected with the city water supply. Professor Loomis gives the hight of clouds as about 2 miles, and as the aqueous vapor always present in the atmosphere is suspended for a considerable time and carried for great distances by winds, it is highly probable that the great majority of the water which falls as rain has been elevated by the sun to a hight approximating 10,000 feet.

While it would be fair to assume this figure in calculations, there may be objection to it on the ground that the clouds from which much of our rain is precipitated are not more than ; mile above the earth, and, therefore, a hight of but 3000 feet will be estimated for, but those who desire to assume the greater elevation can readily calculate what the figures would be for 10,000 feet. As shown above, the weight of 1 inch of rain upon 1 square mile is 145,200 000 pounds, multiplying this by 3000 feet for the hight, and dividing by 60 on the assumption that this inch of rain fell in one hour, we have as a result 7,260,000,000 foot-pounds, representing the amount of work done by the sun per minute if the water was raised as rapidly as it fell. This is equivalent to 220,000 horse-power. If pumping machinery worked at the low economy of 2 pounds of coal per borsepower per hour, or if the pumps gave a duty of 100,000,000 foot pounds, 200 gross tons of coal would be required to raise to a hight of 3000 feet the water represented by 1 inch of rain on a square mile; now, multiplying this by 129 to represent the area of Philadelphia, we have 28,380,000 horse power and a coal consumption of 25,800 long tons.

According to a German scientific journal, a material called "flexible glass" is made by dissolving four to eight parts of gun cotton in one part of ether or alcohol, and adding to the solution two to four parts of a non-resinous oil, and four to ten parts of Canada balsam. The mixture is apread on a plate of glass and dried in a current of air at a temperature of 50°. The residuum is a hard, flexible, transparent mass, resisting alike acids, alkalies and salts.

# THE TIN SHOP.

Flange for a Smokestack.

From M. M., Newark, Ohio.—I would like to have published in The Metal Worker a method for describing the pattern of a flange to fit around a smokestack that comes through the ridge of a gable roof. The flange is to be the same distance from the stack at the bottom where it joins the roof as at the sides where it joins the ridge.

Answer.—In Fig. 1, let A B C D E represent the elevation of flange, and a b m k the elevation, and a b the pro

ELEVATION n

Flange for a Smokestack,—Fig. 1.—Plan and Elevation.

file of stack. E D C is the angle of roof. In the plan, K L M N represents the stack or opening in flange, and F G H J the outer line of flange, or where it joins the roof. The gable of roof is represented in elevation at D, and in plan by J G. The method to be followed in obtaining the pattern in the

present instance is that usually employed in such cases, that of triangulation. Referring to the plan it will be seen that the pattern for N M H J will answer for the three similar parts. Aceordingly we will obtain the pattern for this part, which can be used for marking cil the others if desired. If it was desired to make the article in two pieces, it is probable it would be con venient to have the scams or joints at J N and L G of plan. If the pattern was to be in one piece the joint could be located where desired, as at L G or M H. To obtain the location of sections in plan, which when constructed will give the width of the pattern be-

divisions in M N of plan, which represents one fourth of the circumference. For the purpose of avoiding a confusion of lines, the manner of obtaining the shape is shown in Fig. 2. In this figure A' B' C' D' E' is a duplicate of €levation shown in Fig. 1, as H J F is a duplicate of H J F. Divide H J' of Fig. 2 into the same number of parts as was H J of Fig. 1, and, with the Tsquare placed at right angles to F H', carry lines from the points in H J, cutting D' C', as shown. From the points in D' C' erect perpendiculars, as shown by 22, 33, &c. On the perpendiculars drawn from D' C', measuring from D' C', set off the length of correspond-

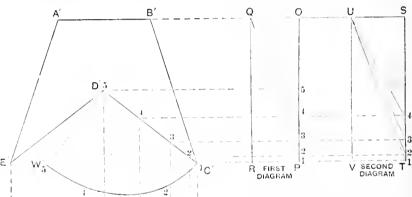


Fig. 2 — Method of Constructing Diagrams of Triangles.

tween the points indicated, proceed as follows:

Divide II J of plan into any convenient number of equal parts, as shown by the small figures. Also divide N M into the same number of parts as was J II. Draw solid lines connecting similar points, as 22', 33' and 44'. In a similar manner connect by means of dotted lines the points in II J with those of the next highest number in M N, as 1 with 2', 2 with 3', 3 with 4', &c.

The next step to be taken is to construct a section of the article as it would appear when cut by the line of the roof. This section is to be used for obtaining the stretchout of the pattern along the edge meeting the roof. The atretchout of top of article, as shown by A B of elevation, can be obtained from the

ing lines in X' H' J'. Thus make line D' W' (5 5) equal to X' J', &c. A line traced through the points thus obtained, as shown by W' C', will give the shape of J' H' when cut by the roof angle D' C'. The divisions in W' C' correspond with similar divisions in J H, Fig. 1.

The next step will be to construct sections corresponding to the lines drawn in N M H J of plan, and thus obtain the width of the pattern between the points indicated. Extend A' B' of Fig. 2, as shown by A'S, and from point C' draw C' T parallel with A S. At any convenient place erect the perpendicular O P, cutting A' S and C' T as shown. From P on the base line set off the distance P R, equal to the space M II of plan, or, in other words, the distance between the stack and lower edge of the flange. From R erect the perpendicular R Q, and connect P and Q. If the triangle R Q P was placed with ita base on M H of plan, the hypotenuse P Q would give the distance from point H in plan to point M, as if measured on the finished article.

To construct the remaining triangles, draw lines from the points in D'C'

parallel with C' T, cutting O P. Connect the points in O P with Q, thus forming the sections corresponding with the solid lines in plan. For the second diagram of triangles, erect the perpendicular T S, and from T set off the distance T V, equal to the length of any of the dotted lines in plan. From V erect the perpendicular V U. Continue the lines from P to 4 until they intersect T S. From the points thus obtained in T 8 draw lines to U. The second set of triangles thus obtained, and shown by dotted lines, correspond to sections through the article on dotted lines in plan. The divisions now obtained are all that is necessary for describing the pattern. The stretchout of the upper edge of pattern, or that coming against the stack, can be obtained from M N of plan. The stretchout of the lower edge of

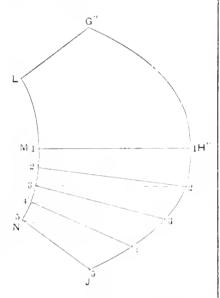


Fig. 3.-One-Half of Pattern Shape,

the pattern, or that which comes against the roof, is obtained from C W in Fig. 2, while the distances across the pattern, as indicated by the solid and dotted lines, are obtained from the first and second diagrams.

To develop the part of pattern shown by M" H" J N" in Fig. 3 proceed as follows: At any convenient place draw the line M" H". Establish the point H" and with the dividers set off the distance P Q of first diagram of triangles, or, what is the same, making it in length equal to C' B' of the section. From M' as center, and with radius M 2' of the inner circle of plan, which represents the top of article, describe a small src. From H" as center and with T U of the second diagram of triangles as radius, being equal to the distance indicated on plan from H to point 2', strike another small arc intersecting the one just struck, thus locating point 2' of the pattern. With point 2' of the pattern as center and Q 2 of the first diagram of triangles as radius strike a small are, which intersect with one struck from point H" of the pattern as center and the distance 1 2 in C' W' of Fig. 2 as radius, thus establishing point 2 in the

lower edge of the pattern. With point 2 of the pattern as center and 2 3 in M N of plan as radius strike a small are, which intersect with one struck from point 2 of pattern as center and U 2 of second diagram of triangles as radius, thus establishing point 3 of pattern. With point 3 of pattern is center and Q 3 of first diagram of triangles as radius strike a small are, which intersect with one struck from point 2 of pattern as center and distance 23 io C' W' of Fig. 2 as radius, thus establishing point 3 of pattern. Proceed in this manuer, using in the order described the stretchout of the top edge of pattern, as shown in M N of plan, the hypotenuses of triangles corresponding to the dotted lines in plan, the stretchout of the elliptical section, as shown by W D C', and the hypotenuses of the triangles shown in the first diagram. Lines traced through the points thus obtained, as shown by M H J N, will be the quarter pattern. The corresponding pattern, as shown by M' L" G" H", can be obtained in a similar manner or by duplication. Then N" M" L G'H" J" is the pattern for part of article shown on plan by N M LG H J. If the article was to be made in two pieces, using the pattern shown in Fig. 3, the joints would be at J N and L G of plan. As the net pattern only is shown, the necessary edges are to be allowed.

# Trades School at Elmira Reformatory.

The eighteenth year book of the New York State Reformatory, Elmira, N. Y., containing the annual report of the Board of Mauagers for the year ended September 30, 1893, which has just been issued, is a handsomely gotten up volume of nearly 200 pages, enriched by excellent i lustrations, diagrams and tables, giving complete information in regard to this reformative institution. It is remarkable in that its typography, illustration and binding are solely the product of prisoners' labor, and each is of the very best character.

Among much matter of great interest, perhaps the most interesting portion of the report is that relating to the trades school system in operation there, to which brief reference has previously been made in these columns, and which, according to the Board of Managers, is "well organized and excellently administered." The achool is under the direction of E. E. Clark as principal, to whom we are indebted for the copy of the report. It embraces 34 trades, and during the year 1804 pupils received instruction in the various classes. Of these, 452 were paroled, and 355, or 78 per cent., went directly into employment in the trade taught them there, instead of recruiting the ranks of the "lapsed masses" of unproductive or vicious humanity.

#### The Plumbing Class.

Among the most prominent of the trades taught are plumbing, steam fitting and tinsmithing, each of which has a large following among the inmates of the reformatory. Plumbing is taught in all its branches. The benches are fitted out with improved pipe holders—a local innovation—for holding pipes

and joints in all positions, thus doing away with bricks. The following account of the class is extracted from the Summery, the institutional organ: "Among the many trades taught at the reformatory, that of plumbing can be placed in the first rank, as much on account of the facilities it offers for providing remunerative employment to Inmates in free life, as by reason of the special opportunities the institution affords for intelligent and advanced practical efforts in this line. At the inception of the class, about four years ago, it numbered 30 pupils, the attendance increasing gradually with the capacities of the reformatory, until now 60 inmates are receiving regular instruction in it. The majority of men graduate from the plumbing department as advanced apprentices, commanding, at the time of their release on parole, wages not smaller than \$1.50 per day. The others-generally those who have had occasion to exercise their talents on the suffering steam pipes or other vital organs of the reformatory, or in the eatablishment of new fixtures for the use of its population-manage to secure better paying positions, as journeymen, at a salary of \$2.50 and \$3 per day. The regular course of instruction, which originally included 1008 hours of work, actually covered in 304 hours, divided according to 20 distinct lessons: these are in their order: calking and cutting cast iron pipe fittings, making seams of sheet lead, overcast joints, cup joints, making traps, wiping horizontal and upright round joints, and branch joints (four lessons), wiping on stop cocks, wiping flange joints on floor and safes, wiping waste in copper lined bathtubs, wiping flange on 2-inch pipe, witing ferrule from 1 inch to 2 inches, wiping joints in corners, under floors or between joiets at different angles, making bends with and without sand, wiping tanks or cisterns, making safes for fixtures, putting overflow in safe waste, setting water closet, wash basin, sink, urinals. The value of the instruction afforded in this class, apart from the institutional work performed by its members, may be surmised from the fact that 23 of its graduates secured employment as journeymen or assistant plumbers during the past year. "

#### Steam Fitting Class.

An adjunct of the plumbing class is one in steam fitting, which is under the direction of the plumbing instructor. Graduates from one frequently pass into the other in order to perfect themselves in both branches, the institution naturally sflording a large field for practical labor in either. Three hundred hours of instruction are supposed to complete the course, prior to graduation, after which pupils not paroled are either transferred to another class or assigned to repairs within the building. outline in the steam fitting class calls for 19 lessons: Learning names and use of tools, sizes of pipes, dlilerent fittings and styles of valves; cutting right and left nipples by hand; cutting nipples from 1 inch to 8 inches by machine; cutting crooked and running threads: cutting pipe to measurements; packing valves; running joints; making gaskets for flange unions, water unions, steam traps and pumps; binding offsets in pipe; making offsets in pipe with 45° ells; cutting openings in different s zed pipes and tapping for connections; making connections, using right and left couplings, ells and nipples; making connections with flange and water unions; running threads with lock nuts; connecting radiators with union valves

and unlon ells; connecting radiators with right and left nipples; making box coils; making wall coils with headers; making wall coils with return bends; fitting up and trimming a boiler; connecting radiators to boiler by the two pipe system; connecting radiators to boiler by the one-pipe system.

#### Tinsmithing Class.

In the tinsmithing class the pupil acquires a knowledge of tin and sheet iron work. He is at first instructed in the use of bench shears and hand shears; then come lessons in grooving, wiring, folding, burring and turning machines and soldering bottoms and seams of tinware. At this moment he is prepared to make such srticles as straight cups, flaring pans, coffee pots. Later on, after other miseellaneous work, the pupils are called upon to describe patterns for flaring articles, elbows of different shapes, T-joints at different angles, &c. They are then prepared for general job work and the manufacture of ware from diagram and Very little measurements received. machinery is used in the tinsmithing class; it is supposed to be more profitable to the followers of it to construct their own work as much as possible without mechanical aid.

#### General System of Instruction.

A similar system of instruction is used in the 30 odd other trades taught, which range from stone cutting to stenography and from carpentry to cooking. Every class is provided with a register made up of bound printed sheets, on which are recorded each pupil's work, the general form of record varying for each class. In the register is also kept the number of hours spent on the various labor divisions, dates of examinations and markings corresponding, &c. so that his standing and progress may be computed at any moment. As the pupils advance they are assigned to work of a more responsible nature and in most of the classes perform labor of actual value to the State. Every class has at least one foreman or chief instructor, a citizen employee. He in turn selects from among the graduates of his class a certain number of men who act as assistant instructors, to coach along the entire department. Examinaalong the entire department. tions are held at the expiration of the time mentioned for each special division of the work assigned to the pupils, and upon the successful issue of these examinations depends the division of work for the succeeding days. Classes are held every week day, in the morning and afternoon, and in two or three evenings of the week as well. Each pupil is taught drawing so far as it is requisite for the trade he is studying. In fine, the trade instruction offered is of the very best quality obtainable, and is calculated to impart a thorough knowledge both of the practical and theoetical aspects of the trades taught.

Weeding railway tracks by electricity has been tried on the Illinois Central Railroad after lime, steam, fire and gasoline burners had been tried with little success. The apparatus, devised by J. Wallace, Chief Engineer, and A. A. Sharp, Division Superintendent at Memphis, Tenn., consisted of an ordinary flat car, to which was attached a sort of circular brush suspended at right angles to the track and of authicient length to extend over the ends of the ties. It was studded thickly with fine copper wire, which came into contact with the weeds and grass on the track

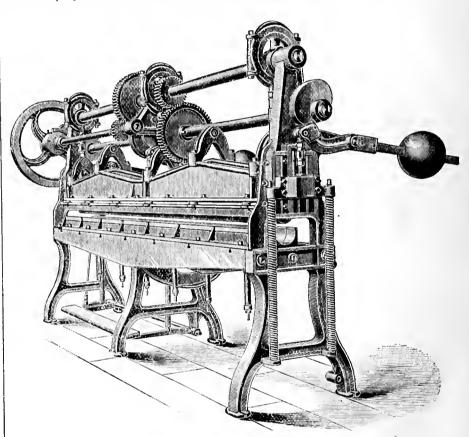
as the car passed over the road, the brush being so constructed that it could be raised or lowered at will. This brush was attached to an electric generator by fine wire, through which a strong current of electricity passed to the brush, and from it to the weeds through which it was driven. Its touch killed the weeds, root and branch. The machine, after thorough trial, is said to have been pronounced a success. Attached to the ear is a box car carrying a stationary engine and dynamo.

# The Niagara Gutter Former and Bender

The gutter former and beader just introduced by the Niagara Stamping & Tool Company of Buffalo, N. Y., is

die acts, and while it remains at the lowest point the outside slides come down again to complete the bead or beads

The time required to form and bead a 10-foot length of gutter with one or two beads is about two seconds. The formed gutter is loosened from the lower dle by spring attachments and it can be removed without difficulty from either end. The work produced is perfectly straight and the beads are round and uniform the entire length. There is no tongue or hook in the bead, which is unavoidable when using a grooved rod for the work. This is a convenient feature for the slip joints, and it results in a considerable saving of stock, since the hook on a 10-foot length of gutter requires 30 square inches of metal for double bead. A bead can be made with



THE NIAGARA GUTTER FORMER AND BEADER.

designed for both forming and beading the gutter at one operation. The machine is built with sufficient stiffness to prevent apringing. It has a central frame supporting the bed and giving additional bearings for the shafts. The motion is controlled by a positive clutch mechanism, and the dies required for the work are attached to three aides, the two outside ones being connected. The machine is back geared one to three. The shaft with fly wheel and clutch makes six revolutions, while the shaft with eccentries to operate the outside slides makes two, and the shaft for the inside slide, which is operated by cams and carries the forming die, completes but one revolution.

ing die, completes but one revolution.

The sheet, previously cut to the correct width, is put in its place lengthwise. A depression of the foot treadle engages the clutch and throws the machine in motion. First the two outside slides descend simultaneously to break the edge of the sheet, or both edges if an eave trough with double bead is being made, then the forming

this machine as small as ‡ inch dismeter and up to 1 inch diameter. Provision is made to take the spring out of the material sufficiently to produce a trough of the standard width. The machine is constructed for 6-inch gutter and the smaller sizes. The working parts are so arranged that the exchange from one size to another can be performed rapidly and without trouble. In addition to a half round eave trough the machine can be provided with dies for so-called architectural gutter of various designs, with bead along the edge. Material as heavy as No. 24 gauge can be worked, or on an extra heavy machine even as heavy as No. 20 gauge. The dies are arranged to accommodate a gutter with a slip joint at either end, right or left.

Competition among the gas companies in Brooklyn has resulted in a gradual fall of the price of gas from \$1.25 to 80 cents per 1000 cubic feet within the past six months.

# HEATING PLUMBING.

## **NEW WORK AND CONTRACTS.**

A. M. Fierson, Cromwell, Conn., who does a large florist business is building two new greenhouses, one will be heated by steam, the other by hot water, with Faultless Furman boilers, in order that a comparison of results can be made.

CHAS. LUKER will use a Heckler ateam boiler in heating the Kellogg School, at Canton, Ill., having secured the contract at \$1190.

FOSTER & GLIDDEN, 53 Dearborn street, Chicago, are to install a Farquhar hot water heating plant in the residence of Jamea W. Janney, 4729 Greenwood avenue.

THE CONTRACT for furnishing the steam heating apparatus for Christ Church, Hyde Park, Mass., has been awarded to E. C. Tourtelotte.

SECRETARY MCNABB of the Paterson, N. J., Master Plumbers' Association is doing a lot of heating work this fall and is installing one of the J. H. McClain Company Cambridge steam heaters in a residence on Ninety-third street, New York.

COOK & CHICK, 253-255 Kinzie atreet, Chicago, are to install ateam heating planta in the flat building of George W. Wright, 1885 Washington boulevard, and flat building of Herman Kranze, Oakdale and Evanston avenues.

WM. McCann is heating a greenhouse for Lovett & Co., Little Silver, N. J., using a Faultless Furman boiler.

McGuinness, Smith & Co. have the contract at \$23,970 for heating and ventilating the new Fifth Avenue School Building at Pittaburgh, Pa.

F. A. HULL & Co., Danbury, Conn., have the contract to do the plumbing and roofing for a \$10,000 addition to the plant of Gilbert & Bennett, at Georgetown.

GAY & CULLOTON, 40 North Clark street, Chiosgo, have contracts for the plumbing, gas fitting and sewerage in the store and flat building of M. A. Devine, Ravenswood; residence of Nicholas Cook, 1321 Oakdale avenue; ten flata of Samuel Gessler, 279-280 La Salle avenue, and 40 flats of F. C. Neagle & Bro., 186-188 Polk street.

A. B. Noyes & Co. have the contract for putting the steam heating apparatus in the new Citizens' Bank Building, and Farnham & Albee that for the plumbing. This is said to be the largest contract of the kind ever undertaken in St. Johnsbury, Vt.

WESCOTT & DAVIS, Portland, Maine, are putting the heating apparatus in Will Allen's new house on West street, using the Hub hot water heater, for which they are sole agents for Portland and vicinity. This firm have several other contracts in which they will use the Hub.

B. D. Duggan, 207-209 Lake atreet, Chicago, is to place Richmond hot water heaters in the residences of Voclab Kolock, 944 St. Louis avenue; Max Schweizer, Central Park avenue, and Dr. Arthur MacMeal, Berwyn, Ill.

GEORGE B. LEWIS is putting steam heating apparatus into the residence of Albert J. Bacon, at Hyannis, Mass.

FARNHAM & ALBEE, St. Johnsbury, Vt., have the contract for putting in

the steam heating in Sheriff Sulloway's house and H. A. Belknap's house, and heating and plumbing W. L. Russch's new house.

E. H. BARRY has been awarded the contract for the plumbing and piping for gas in the new Park Avenue School House, Providence, R. I.

THE BRIDGEPORT STEAM HEATING COMPANY, Bridgeport, Conn., have secured the contract for placing a Gurney heating apparatus in the residence of Robert A. Strickland, Stratford, Conn.

E. BAGGOT, 169-171 Adams street, Chicago, has contracts for plumbing, gas fitting and sewerage in the flat buildings of A. Mackay, 560 North State street; J. W. Janney, 4729 Greenwood avenue, and Charles Robinson, 4406 Oakenwald avenue.

Thomas W. Weathered's Sons, 244 Canal street, New York, are erecting a large conservatory for the Tampa Bay Hotel, Tampa Bay, Fla. They are completing and doing the heating work in a large greenhouse for John R. Hegeman, president Metropolitan Life Insurance Company, at Oriental Point, Conn. One of their No. 4 boilers is being used to heat the new greenhouse of the Convent of the Sacred Heart on Commonwealth avenue, New York.

THE FORKETT & BISHOP COMPANY, New Haven. Conn., have the contract for putting in a Bolton heater in C. E. Thompson's house, West Haven.

THE CONTRACT for heating, ventilating and plumbing the police station, at Rochester, N Y., has been awarded to Thomas W. Ford, whose bid was \$8450.

W. E. CORNELL, Lakeville, Conn., has the contract for plumbing, gas piping and tinning the house which John Sheppard, Jr., is building near Sage's Ravine.

Chas. N. Ruggles is building a new house at a cost of \$5000, at Bridgeport, Conn., for which the plumbing and heating contracts have not been let.

REV. FATHER HALM. paster of St. John's Catholic Church, Frederick, Md., is having a large heating apparatus placed in the church by the firm of Fuller & Warren Company of Troy, N. Y. The furnace weighs 6350 pounds.

THE BAKER & SMITH CCMPANY, 193-7 Van Buren street, Chicago, have contracts for steam heating in the residence of John A. Ayers, Jacksonville, Ill., and the Wilder Building, Louisville, Ky.

J. J. Wilson, heating engineer, of the Fuller & Warren Company, Troy, N. Y., has just closed the contract to heat 8t. John's Catholic Church, Frederick, Md. This church contains 284,000 cubic feet of space and two No. 350 F. & W. water combination, with 35-inch fire pots, will be used to do the heating. The system has been arranged by Mr. Wilson, and H. J. Wilson & Son will erect the work.

A RESIDENCE is being built at a cost of \$20,000, at Tarpville, Conn., for Mrs. J. C. Mitchelson that will be heated by furnace, piped for gas and have a modern system of plumbing.

Among the large orders taken this week by the American Radiator Company was that for the radiation to be placed in the Morgan Memorial Bullding, at Buffalo, N. Y.

Nasu & Hama, 2216 Wabash avenue, Chicago, are to overhaul the plumbing in the store and flat building of W. H. Wilson, Twenty-fourth street and Indiana avenue.

W. H. BUCKLEY, Burlington, Vt., has the contract for the plumbing and A. B. Franklin of Bosten has the contract for the heating at Fort Ethan Allen, Burlington, Vt. The Luildings are: One administration building, one double set of officers' quarters, one hospital steward's quarters and one powder magazine.

The Smith & Anthony Company, 217 Lake street, Chicago, have lately received orders for Hub heating furnaces from Ravenswood, Winnetka and Tyler, 111.

SEALED PROPOSALS will be received at the effice of the Supervising Architect, Washington, D. C., until October 21, for removing the old steam heating apparatus and furnishing a new low pressure return circulation ateam heating and ventilating apparatus for the United States Custom House and Post Office Building, New Haven, Conn. Drawings and specifications may be had from the Custodian of the Custom House and Post Office Building at New Haven or from the Supervising Architect, Washington.

THE S. WILKS MEG. COMPANY, 113-123 Clinten atreet, Chicago, report the following sales of Wilka hot water heaters: A large heater for new head-quarters at United States Military Academy, West Point, N. Y.; two large heaters for new residence of J. S. Jones, Granville, Ohio, and one heater for residence of Dr. Charles Zaremba, Riverside, Ill.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until October 30 for the laundry machinery for the United States Marine Hospital extension at San Francisco, Cal. Drawings and specifications may be had from the Custodian at the United States Marine Hospital, San Francisco, or from the Supervising Architect, Washington.

W. H. SIMPSON, Olean, N. Y., makes a specialty of steam and hot water heating as well as fixtures and plumbers goods generally, and his present contracts include the County Building, at Little Valley, the new Olean House and several other large structures.

The Davis Johnson Company, 45 Jackson street, Chicago, report the following sales of New Idea heating furnaces: T. H. Loybed, Faribault, Minn.; Pariot & Smith, Owatonna, Minn.; Hyde Handware Co., Northfield, Minn.; A. D. Palmer, St. Paul, Minn.; Ashworth & Seubert, Minneapolis, Minn.; H. Gaylor, Kanssa City, Kan.

J. M. Mason, Limerick, Maine, is to have his house heated by steam, the contract having been awarded to Geo. A. Carpenter.

THE CONTRACT for the steam heating and ventilating plant at the capitol addition at Bismarck, N. D, has been formally let by the capitol commissioners to S. I. Pope of Chicago for \$3335.

THE BOARD OF EDUCATION Of West Chester, Pa., are considering a system of heating and ventilation for the High School Building.

THE PLUMBING AND STEAM HEATING in the Beta Theta Pi Fraternity House, now under course of construction at State College, Pa., has just been awarded to H J. Schad & Bro. of Bellefonte, Pa.

# STEAM AND HOT WATER.

The F. & W. Co. Hot Water Heater.

We show in the accompanying illustrations a general view of the F. & W. hot water heater, manufactured by the Fuller & Warren Company, Troy, N. Y., while in Figs. 2 and 3 are shown broken views of the water sec The heater is made in the same general form as the boiler heretofore manufactured by the company, but in the new style they are made for a single large flow and return pipe, as shown in Fig. 1. From this large pipe the water can be distributed by means of manifolds to four or six pipes, and for very large buildings two heaters can be used as twins and eight or more pipes can be taken off. Figs. 2 and 3, which show a single arm and a double arm section, were designed to show the flow of water, a free circulation being one of the special claims made for this apparatus. The boiler is entirely of east iron, and special claims are made for the large amount of water heating surface. It is also said to be self eleaning. aections above the fire pot are connected with nipple joints, the hub being planed and fitted, making, it is aaid, leakage by expansion or con-traction impossible. The heaters are tested under hydraulic pressure of 80 pounds to the square inch before leaving the works. Another feature to which the manufacturers direct attention is the grate which the firm have used for a number of years past in their leading stoves, ranges and furnaces. The grate is mounted on anti-friction rollers, and by means of a lever shaker can be very easily operated. The shak. ing causes the clinkers to collect in the center, when by drawing out the slid-ing center they fall into the ash pit, which is made very capacious. The grate is suspended below the fire pot, affording ample space for the insertion of a poker or slicing bar through the "non-clinker" door. The grate is made very heavy, but in ease of any accident the ash pit front can be easily removed and the entire grate replaced without These heaters are made in trouble. three sizes, with fire pots measuring 20, 24 and 28 inches in diameter, adapted to supply from 450 to 900 square feet of direct radiation. These are the sin-The boilers of gle section boilers. double section are made with the same diameter of fire pot, and are adapted to supply from 600 to 1200 square feet of direct radiation.

# HEATING NOTES.

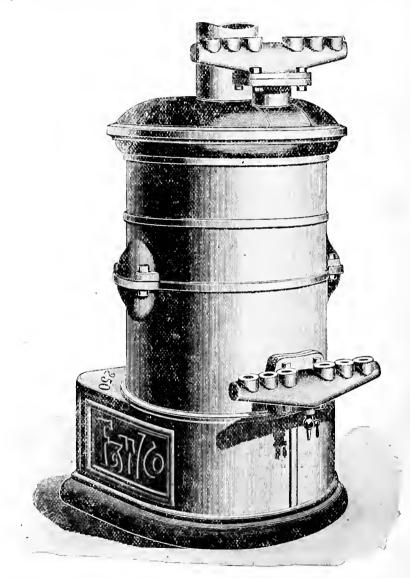
THE UNITED STATES HEATER COM-PANY, Detroit, Mich., send out a serviceable catalogue of the Capito', Heela and Mascot hot water and steam heaters of their manufacture. The pamphlet, of convenient size, is bound in paper, contains illustrations, general and broken, of the various heating apparatus, followed by several pages devoted to radiator valves and fittings, price-list of the same, tables of wrought iron pipe, price-list of radiators and directions for setting bollers.

J. H. Colman, Jr., has been in charge of the New York house of the J. H. McClain Company of Canton, Ohio, during the tour of Manager D R McCallum among the steam and hot water trade. The popularity of the Humber and Cambridge boiler, they claim, keeps the factory running overtime.

C. F. Hauss, one of the engineering corps of the Richmond Stove Company,

making a flexible covering with ample air spaces To insure durability a canvas or cardboard protection is provided.

The John Stimons Company, 110 Centre street, New York, have arranged for the sole agency of the American pipe hanger, and are showing a line of the Wolff gas radiators in addition to their line of steam fitters' and plumbers' supplies. They are furnishing Exeter



The F. & W. Co. Hot Water Heater. - Fig. 1. - General View of Heater.

has taken up headquarters at 75 Centre street, New York, and will look after the interests of their steam and hot water trade from that stand in future. J. W. Fryer, well known to the trade East and West, is now at Norwich, Conn., occupying Mr. Hauss's vacant chair.

THE NEW YORK ASHESTOS MFG. COMPANY, 11 Chambers street, New York, are putting on the market a new non-conducting material for covering boilers and steam pipes. It consists of several sheets of asbestos formed in "box plaits" and cemented together,

radiators and the valves and piping for some large heating contracts.

W. A RUSSELL, 89 Centre street, New York, has just returned from a satisfactory trip to Boston in the interest of the Niagara radiators and the Detroit quick opening ateam and hot water radiator valves, for which he is Eastern sales agent.

D. R McCallum, manager of the New York house of the J. H. McClain Company, Canton, Ohio, is enthusiastic over the reception of the Cambridge steam and Humber hot water boiler by the trade. He recently closed a contract for a carload of assorted boilers with a dealer of long experience. The Cambridge steam boilers, he is advised, have been selected for heating the schools at Santa Cruz, Cal., the committee having spent several months in investigation before making a selection.

which he can ship promptly a large order for either steam or hot water valves of angle or corner style, with coupling or male or female thread. He is also the New York representative of the Niagara Radiator Company, Buffalo, N. Y., and has recently filled

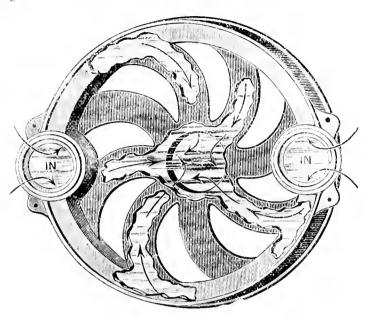


Fig. 2.—Broken View of Single Arm Section.

R. D. Jackson, Jr., manufacturers' agent and dealer in steam specialties, is located in convenient quarters right among the trade, at 89 Centre street, New York. He makes a specialty of the Electric boilers and the goods of the Van Auken Steam Specialty Company.

THE NEW YORK HOUSE, at 69 Centre street, of the Holland Radiator & Mfg. Company, Chicago, recently furnished 5800 feet of radiation to Mulhern &

orders with some of the largest fitters in his territory. A Niagara hot water radiator handsomely decorated is one of the ornaments of his office. Having served as a heating engineer with some of the largest boiler manufacturers, he is well qualified to give assistance to the buyers of his goods.

WE ARE INDEBTED to J. Hollis Wells, 32 Nassau street, New York, for a report in pamphlet form of a test on extended flue radiation vs. plain sur-

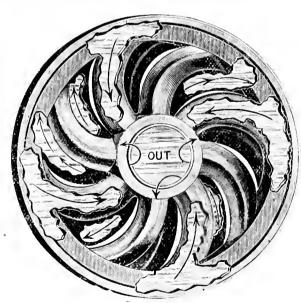


Fig. 3.-Broken View of Double Arm Section.

Piatti of Forty-second street, New York, for one of their heating contracts.

W. A. RUSSELL, 89 Centre street, New York, sales agent for the Detroit Quick Opening steam and hot water valves, made by the Detroit Lubricator Company, Detroit, is sending out a neat little catalogue of the goods. He has prepared a well arranged stock room and carries an assortment from

face radiation, made by Professors Denton and Jacobus at Stevens Institute of Technology, Hoboken, N. J.

In his message to the Mexican Congress on its reassembling on Sunday, President Diaz states that the Mexican Government has sold since April last nearly 1,000,000 acres of land to private individuals. During the last six months,

he says, 111 km. of new railroads have been built, making a total of 11, 100 km., and the construction of the important Interoceanie Railroad to Tehauntepec has been completed. The President looks for a greatly improved financial condition in Mexico this year.

August's fire loss of the United States and Canada, as computed by the Journal of Commerce, aggregates \$10,432,-800, which is a decrease of nearly \$3,000,000 from the figures of the corresponding month of 1893. So far the total fire loss for this year compares very favorably with that of the first eight months of last year, and exceeds by only a small margin that of the same period in 1892. The following comparative table of losses by months demonstrates the gratifying improvement that has taken place:

1892.	1893.	1894.
January \$12,564,9(0)	\$17,958,400	\$10,568,400
February., 11,914,000	9,919,900	11,297,600
March 10,648,000	16,662,350	9,147,100
April 11,559,800	14,669,900	11,540,000
May 9,485,000	10,427,100	10,777,800
June 9,265,550	16,344,950	8,232,300
July 11,530,000	12,118,700	16,307,000
August, 10,145,300	13,222,700	10,432,800
Totals \$87,112,550	\$111,324,000	\$87,453,000

There were 204 fires in August of a greater destructiveness than \$10,000 each, but none reached as great a loss as \$500,000. Of losses estimated at over \$100,000 nearly all were in the Western States, no very heavy Eastern losses being recorded.

The statistics of the New York Custom House, just issued, show that the amount of merchandise entered and not withdrawn from the bonded warehouses at this port, in the month of August, increased \$584,699 over the same period of 1893. The figures exhibit, however, a decrease of \$1,208,-472 over July of this year. As goods were received in unusual quantity in the warehouses during August, just before the new tariff law came into force, the decrease is attributable entirely to the extraordinary rush to withdraw merchandise during the last four days of the month, the new law having become operative on August 28. Had it not been for this circumstance August's figures would have shown a large increase over those of July. At the rate at which bonded goods have been with-drawn in the first half of this month it is estimated that the decrease in the sestimated that the decrease in the value of goods in the warehouses in September, as compared with August, will be quite \$7,000,000.

According to estimates given out by Mint Director Preston, at Washington, D. C., the total of gold coined in the United States during the fiscal year ended June 30 last was the greatest on record with the exception of 1881. Mr. Preston places the gold coinage of the year at \$99,474,912.50, made up of \$55,143,640 in double eagles, \$34,968,840 in eagles, \$9.287,180 in half eagles and \$75,252.50 in quarter eagles. Of this amount \$76,219,911.50 were coined in the Philadelphia mint, and \$21,637,000 in San Francisco. The mintage at New Orleans was comparatively insignificant. The increase in gold coinage has been due to the necessity of reducing the large supply of bullion in the treasury vaults into coin, to meet the drain on the Treasury caused by the panie.

The Lehigh Valley Railroad did the heaviest business in its history during the month of August.

# TIN PLATES.

The British Press on American Tin Plates.

The tone of the English papers in their recent remarks on the new American tariff is not calculated to inspire high hopes in the breasts of the Welsh tin plate manufacturers as to their prospects of regaining their pristine hold on the United States market. The London Ironmonger boldly tells the Welshmen that the American industry has come to stay and that it has been established on such a basis as will "cause the loss at no distant date of the American market to the manufacturers of plates in South Wales." Under the circumstances, the Ironmonger thinks it would be worse than foolish to flatter the Welsh tin plate makers with the idea that they can hope to retain their former monop oly of this great market. They can still send their product to the United States and will continue to do so for some time to come, but what was once their monopoly is, says the Ironmonger, hopelessly lost, unless the whole methods of the trade in Wales are thoroughly revolutionized and readjusted so as to meet modern conditions. Other papers advise reaching out in other directions, as Africa, Australia, &c., and there opening up markets for the goods heretofore sent to the United States. The London Economist advises the South Wales mak. ers to adopt the policy of "keeping prices moderate so as to check the new industry which has sprung up in Amer-But, at the same time, the journal seems to think that there is no valid reason why tin plates should not be made in America under the existing conditions so as to yield a reasonable, if not large profit to the American mak-Similar opinions have recently been expressed by such eminent trade authorities as the Western Mail of Cardiff, the Birmingham Post and the Liverpool Daily Post. Altogether, the Welsh tin plate manufacturers are finding many "candid frienda" in these days in the British press.

#### SCRAP.

THE TIN PLATE WORKERS of the Foxhole Tin Plate Company, Llansham-let, Wales, who have heen idle for two years, have accepted an offer of re-employment at a reduction of 20 per cent. from their former wages, and the works have been started up. The workmen in other parts of the district are said to be indignant and to have offered to contribute to the support of the men if they will cancel the agreement. Other idle tin platers are said to be weakening in their resistance to wage reductions and to be inclined to stretch the 36-box limit now that a revival in trade is ln prospect.

JUDGING from the stock of American tin plates accumulating on the floor of the warehouse of Gummey, Spering & Co., l'hiladelphia, that firm expect an increase rather than a decrease in their business in this line. Their works are in active operation, and they report quite an increase in the number of inquiries for their different brands of try and the quality will be fully main-

plates. They are meeting a good demand for Gummey's Anti-Pinhole bright tin plates, their introduction of same being much appreciated by tin smiths having a demand for tinware which they are required to guarantce against rust.

PRICES in the British tin plate market show, as yet, few signs of upward movement. Manufacturers on the other side appear to be apprehensive that any material advance just now would force business into the hands of their American competitors, and so are modestly maintaining their old level of prices. Meanwhile some of the American tin plate makers are bringing down their figures to meet the new tariff condi-

THE STARTING of the five new mills at the American Tin Plate Company's Works, Elwood, Ind., has been delayed by the unforeseen necessity of removing the two large driving wheels, which were found to be faulty, and the pro-curing of others in their place. The The difficulty in regard to the wage scale in the hot mills department of the works has not yet been adjusted, but the men have continued at work under the old scale up to the end of this month. On October 1 the cut of 25 to 30 per cent. in wages, demanded by the firm, is to go into effect.

PRESIDENT LEEDS of the American Tin Plate Company, Elwood, Ind., has returned home from a European trip.

Among the Philadelphia tin plate works which are actively occupied are those of the Philadelphia Tin Plate Company, Nathan Trotter & Co., proprietors. Only terne plates are at pres ent made by the concern, the product consisting of seven brands, including Trotter's New Method and Trotter's Roofing, both of which plates enjoy an enviable reputation.

THE MEURER BROS. COMPANY, Brooklyn, are adding two more tinning ma-chines to their tin plate plant, making a total of eight sets.

Gummey, Spering & Co., Philadelphia, are considering the advisability of adding a rolling mill to their Continental Tin Plate Works.

IRONDALE STEEL & IRON COMPANY, Middletown, Ind., have two out of six hot mills in operation, as well as two out of eight tinning stacks, and work is being pushed actively in the rest of the plant. The works will, it is expected, be in full operation within two months. The product at present commonths. sists, besides black plates for tinning, of one grade of charcoal and coke bright plates and one of roofing terne, all under the brand name of Crane. The firm's selling agents are B. P. Crane & Co., 1023 The Rookery, Chicago.

J. M. & L. A. OSBORN, Cleveland, Ohio, announce that their well-known brand of Eureka plate will still be on the market at the lower prices ruling under the new tariff on tin plates. They add that it will be made in this coun-

tained. They refer to the large num-ber of brands of terne plates which they earry as a great accommodation to their many patrons in Ohio and adjoining States.

It is stated that a number of Chicago capitalists are considering the advisability of locating a plant at Newark, Ohio, for the manufacture of tin plate.

THE CITIZENS of Anderson, Ind., claim that they will shortly have a larger tin plate plant than any other city in the country. The company who will build the works are stated to include a number of Indiana and Illinois capitalists, headed by Philip Matter of Marion and C. J. Dorsey of Anderson. The project contemplates a twelve mill plant, fully equipped for finishing bright and terne plates. Surveyors have been put to work on the site selected, in order to push the preliminaries as rapidly as possible.

IT IS STATED that arrangements have practically been completed for the establishment of a tin plate plant in Youngs-town, Ohio. A number of capitalists of that city are sald to be interested in the new venture.

THE NEW CASTLE STEEL & TIN PLATE COMPANY, New Castle, Pa., have not made any individual proposition to their workmen looking to a reduction in wages, but have met the officials of the Amalgamated Association in conference with other manufacturers.

THE EFFORT TO LOCATE a tin plate plant at Streator, Iil., has come to grief.
The promoters represented that they had \$150,000 to invest; that they desired to build works in a district having an abundance of coal; that they therefore preferred Streator to any point in natural gas territory, in which fuel might suddenly run short, and that all they wanted Streator to do was to raise \$11,000 toward the erection of buildings. The \$11,000 had been nearly subscribed by local business interests when the py local outliness interests when the promoters asked that it be raised to \$20,000, as that sum had been offered as a bonus by another city. Immediately upon the announcement of this demand the scheme was dramed by demand the scheme was dropped by

WE ARE ADVISED by Thomas Ward, general manager, that the Birmingham Rolling Mill Company, at Birmingnam, Ala., have under advisement the question of establishing a tin plate plant to be operated in connection with their rolling mill. If built it will be the first tin plate mill in the South.

On uext Monday, October 1, 1894, by statutory cuactment of the Fifty third Congress, the duty of  $2\frac{7}{16}$  cents a pound on tin plate will be reduced to 13 cents. The last official report on the in plate production of the United States carried the statistics down to June 30. After September 30 these valuable reports from Colonel Ayer, in charge of this branch of the work, will cease. The atatistics, however, will be brought down complete to that date.

ALL OF THE BLACK PLATE AND TIN MILLS of the Ætta-Standsri Iton & Steel Company. Bridgeport, Ohio, were closed down on Saturday, the 22d, pending settlement of the wage scale. This firm state that it is simply impossible for American manufacturers to pay the prices on the old scale since the reduced tariff has become effective. The mills of this concern will remain idle until adjustment of this matter of wages is accomplished to their satisfaction.

The Government crop report for the month of September shows a decline of 5.7 points in the condition of corn from the month of August, and no less than 31.6 from July. The Southern States are the only quarter in which improvement is noted. There a good corn crop is certain, but in nearly all the great corn States its condition is poor. In eight of the Western corn States, out of an aggregate crop acreage of 40,900,000, over 15,500.000 acres of corn have been cut up for fodder or abandoned. The condition of wheat, on the other hand, is quite favorable, showing 83.7, against 74.0 last year. There has been a marked improvement in this cereal since July. In parts of the wheat region the crop is fully up to expectations, and in other parts the yield has exceeded anticipation. Oats, rye and barley compare favorably with the averages of last year.

The New Southern Railway Company, formed by reorganization of the Richmond & West Point Terminal and the East Tennessee, Virginia & Georgia Railway Company, have acquired in absolute ownership 4,500 miles of road, and by the reorganization have reduced the bonded indebtedness from \$135,000,000 to \$90,000,000, just one-third, and the fixed charges from \$7,500,000 per annum to \$4,500,000, a saving of \$3,000,000 per annum. The bonded indebtedness of the road is now less than \$20,000 per mile. A dispatch—said to be officially inspired—from Chattanooga, Tenn., asserts that the reorganization was effected by Drexel, Morgan & Co. of New York in the interests of the Rothschilds of London and Paris and the Vanderbilts of New York, and that these two families, Drexel, Morgan & Co. and J. S. Morgan & Co. of London, each own one-quarter interest in the new company. The first annual meeting of the company will be held on October 2, at Richmond, Va., when bonds to the amount of \$120,000,000 on the entire property will, it is said, be authorized.

The detrimental effects of the recent depression on the jewelry manufacturing and kindred trades is clearly illustrated in the returns of the Government sales of gold bars for industrial uses during the past two years. These sales in New York City as given in the Journal of Commerce, by months, beginning with January, 1893, were as follows:

with January, 1899,	were as follows.
1893. January\$577,599.89	189;.
January \$577,599.89	January \$187,518,40
February 736,194.11	February 290,244.04
March 691,595,32	March 289,336,35
April 831,024.80	April 316,742.21
May 435,885 08	May 294,908.76
June 374,800 31	June 226,130.82
July 180,1(8.19	July 218,519.10
August 108,053.75	August 299,818.31
September. 220,677.10	
October . 267,899 64	
November, 352,729.75	
December. 160,248.91	

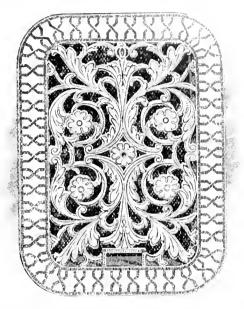
It is estimated that September's sales will aggregate about \$300,000.

A steady rise in the Treasury gold reserve is an encouraging sign of returning confidence.

The Florance Porcelain Register.

We show in the accompanying illustrations a front and back view of an entirely new style of register that is put on the market exclusively by Merchaut & Co., Inc., Philadelphia, Pa. The register face, Fig. 1, is made of glazid porcelain, and there are special features

directs attention is the means for securing the register within the flue. As shown in Fig. 2, there is a spring, s, bent upward from the face of the flange. As the register box is inserted in the flue or orifice in the wall, the spring s will become depressed in coming in contact with the walls of the flue, and tending to spring outward, will held the box firmly in position.



The Florance Porcelain Register. - Fig. 1. - View of Face.

in the mechanism, as shown in the back view, Fig. 2. The register was patented by Andrew J. Cohen of Philadelphia and, as shown in the illustration, is a most artistic production. It must be borne in mind, however, that the registers hereafter made will have a far greater exhaust area than has the one

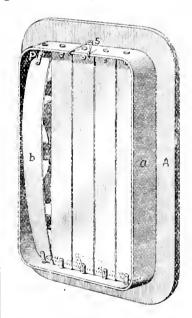


Fig. 2.-Rear View.

from which the engraving was made, which was the first ever produced. Referring to Fig. 2, which illustrates the mechanism of the register, the face A is formed in one piece with the rectangular flauges a, the upper and lower flanges being provided with holes to receive the pivots P on the slats b. These slats are made of spring steel, which gives them great strength and enables them to be readily put in position by bending, as shown in the illustration. Another feature to which the patentee

Furthermore, if necessary to remove the box, it can, by the exercise of a little force, be pulled cut. The particular feature of this register that will appeal to the trade is the capacity for ornsmentation it affords. The face, as mentioned above, is made of glazed porcelain, and in the particular register illustrated the black lines on the border are gilded, while the lines on the face are a delicate blue tint, giving, in conjunction with the gold, a most artistic effect. The question that will occur in connection with these registers is one respecting their strength. We understand that they have been most thoroughly tested, and while they are not intended for floor registers, where they would be subjected to heavy weights, they are of ample strength for all other purposes, being particularly adapted for ceiling and wall use. Furthermore, it is pointed out that they cannot be chipped or destroyed as easily as enameled registers, as the face is made of a solid material. The decoration being burned in, there is no possibility of discoloration by the heat of the flue. It will be readily understood that the porcelain can be decorated in any way to harmonize with the interior finish of a room.

The following receipt is given by an English journal for a composition which may be used as a damp proof coating for walls, or for repairing atone work, or for molding atatues or ornaments: 30 part of tin are dissolved in 40 parts of muriatic acid, and 30 parts of salammoniac are added. A powder composed of freestone, 50 parts; zinc oxide, 20 parts; pounded glass, 15 parts; powdered marble, 10 parts, and calcined magnesis, 5 parts, is prepared and made into a paste with the liquid above mentioned. Coloring matter may be added.

Another New Jersey trolley system is projected. It is to run from Camden to Trenton, taking in all the intervening towns.

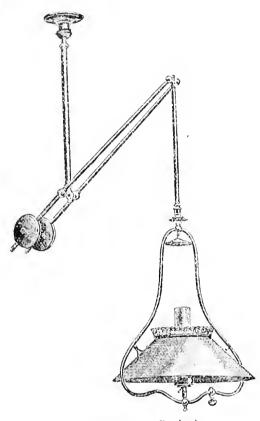
# PLUMBING and GAS FITTING.

The Surprise Gas Pendant.

The illustration shows an adjustable gas pendant that is being introduced by Best & Lloyd, Cambray Works, Handsworth, Birmingham, England,

# The Tobasco Automatic Siphon Tank.

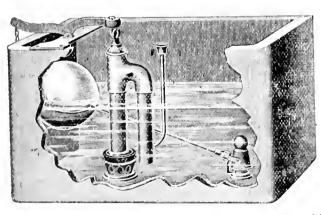
A broken view of the Tobasco automatic siphon tank for flushing closets is shown in Fig. 1 of the illustrations.



The Surprise Gas Pendant.

but, as is usual with English circulars, the one before us fails to give any explanation of the operation. It appears that the Snrprise pendant can be raised and lowered and also turned to the

It is a new device, put on the market by H. C. Montgomery, 90-92 Wood street, Cleveland, Ohio. The special feature of the tank is the supplemental air vent which communicates with the



The Tobasco Automatic Siphon Tank.—Fig. 1.-Sectional View of Tank.

gives the idea that a compensating weight preserves a balance and that the stiffness of the joint is depended upon to hold the light at the desired hight. It presents some features of convenience that may be suggestive to American manufacturers.

right or left, as desired. The picture | uptake of the siphon so as to effectually prevent, it is claimed, all noise and gurgling when the siphon breaks, while at the same time materially increasing the force of the discharge and thus enhancing its flushing capabilities. The conteal valve engaging with its flaring seat, it is pointed out, dispenses with

the employment of further guide. The tank is said to work noiselesaly under any pressure, and to siphon at any point while 1 inch of the siphon is submerged. An enlarged sectional view of the valve in this tank is shown in Fig. 2. This cut shows plainly the supplemental air vent, which, as pointed out above, is the special feature of the apparatus. The water is drawn up into the siphon tube by the siphonic action at the same moment that the atmospheric air is admitted by suction from above, the air

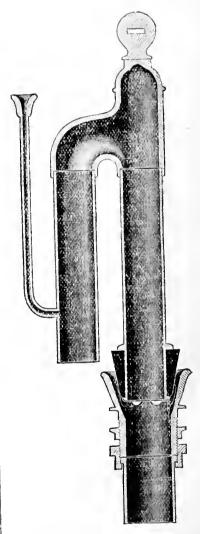


Fig. 2.—Sectional View through Valve.

coming down the smaller tube at the left. Both operations are simultaneous, thus giving the desired relief by sep-arating the air from the water.

It is REPORTED that Chief Clerk Schneider of the Health Department of Buffslo, N. Y., has applied to Judge King for warrants for the arrest of 75 plumbers. Dean Wilson, Inspector of Plumbing, is the complainant, and he charges them with violating the bealth charges them with violating the health ordinances by neglecting to properly ventilate sewer pipes, ainka and water closets. They have been warned, but, according to Mr. Wilson, did not take

### TRAPS AND VENTS.

The Board of Health of Leominster, Mass., took the initial step to make the plumbers conform to the new law by summoning them to appear at a special meeting last week Friday night and be examined. There was a general response, and the following were declared qualified to receive certificates: G. M. Kendall, O. H. Lyon, G. F. Kendall, G. A. Walls, L. M. Blocd, Win. Lynch, F. R. Smith, J. E. Fitzgerald, M. E. McGovern, J. B. Farnsworth, J. F. Lewis, C. W. Wolfe, R. A. Lyon, These men were engaged in business previous to July 10, 1893, and consequently were entitled to certificates upon answering a few questions satisfactorily. Plumbers who began business since then are required to be thoroughly examined, and for this purpose the following Board of Examiners has been created: Dr. C. E. Bigelow, H. N. Spring, William Booth.

T. B. Walmsley, instructor in lead burning at the New York Trade School last year, called on The Metal Worker this week and showed a new compound blow pipe for lead burning with illuminating gas, for which he is taking out a patent. It has been perfected from a pipe that he has carried in his plumbers' kit for years, with which he has done excellent work. He is with John McMenamy, another trade school instructor, at 1277 First avenue, New York.

The Shuster Foundry, Philadelphia, applied 70 of their reducing 's for use in the plumbing of the new apartment house at Broad street and Fairmont avenue, Philadelphia. As each fitting obviated the necessity for a reducer, and consequently as many joints, the advantages gained by their use is plain.

CHARLES SMITH, plumber, who dissolved partnership with George Fey, has taken his brother as a partner, and will open a shop at Arverne, N. Y.

W. P. TARRANT & Co., plumbers, have removed from 76 Putnam street to 12 Maple avenue, Saratoga Springs, N. V.

J. C. GILBERT, A. R. McCallum and Edward Keating have been appointed plumbers' examiners at Whitman, Mass.

YARRINGTON & McCABE, plumbers, Derby, Conn., have dissolved partnership. Mr. McCabe retires from the firm and Richard Yarrington will continue the business at the same location.

T. J. MORAN of Titusville, Pa., has purchased the plumbing establishment of M. Albrecht, at Olean, N. Y., and will conduct it in the future.

THE TITUS & BUCKLEY COMPANY have been organized at Portland, Maine, for the purpose of dealing in house furnishings and carrying on a plumbing and real estate business, with a capital stock of \$100,000. The officers are: President, Augustus C. Titus of Newport, R. I.; treasurer, Chas. H. Buckley of Lynn, Mass.

A NEW HEATING AND PLUMBING FIRM, at Springfield, Mass., will be Sprague & Moore, who expect to be ready for business in their new store about the first of next month. The firm consist of A. N. Sprague, formerly the foreman for H. O. Sprague & Son, and Mr. Moore, who was formerly a member of the Westfield Heating & Plumbing Company. In their new store they will carry a full line of stoves, hardware, paints, &c.

ATTENTION IS CALLED to the change in a well-known plumbing establish-

ment in Salem, Mass. F. J. Dearborn is the successor to E. P. Moulton and will continue the agency for the L. Bosquet hot water heater.

THE WESTERN SANITARY WARE POTTERY, Tiltonville, Ohio, how in the hands of a receiver, will not be sold, as reported, but will resume operations again shortly.

Thos. Kelly & Bro., 124 Franklin street, Chicago, report an increasing trade in their self-acting frost proof closets, siphon basins, and other plumbing specialties.

L SHICK is to open a plumbing store in Davis square, Somerville, Mass.

Ronalds & Co., 54 Cliff street, New York, make a specialty of kitchen boilers, both in galvanized iron and copper. In addition to copper boilers they make copper sinks, copper balls for valve cocks and plumbers' copper goods. Their sample room shows these goods in variety and a fine line fof sauitary earthenware in lavatories, sinks and water closets. They also display an as-

high grade water closets. A special notice requests that previous catalogues be destroyed and states that all their goods bear their name. Sixty plates are used to show the Utopia closet in the different styles it can be furnished, all of which are of non-absorbent, non-crszing vitreous carthenware. Then follow the Sea Shell, Pennant, Tobasco, and Saint Claire front outlet water closets, showing as many different styles of finish. The remaining pages show the Paragon closet seats and flush tanks and the Detroit Smitary water closet.

The Board of Health of Hingham, Mass., has licensed under the new law Rich & Marble as master plumbers, Edos Loring, employing plumber, and Charles B. Whiton, Fred. W. Noyes and E. Bradley Loring, journeymen plumbers.

The Imperial Hot Blast Blow Pipe.

The White Mfg. Company, 40 and 42 State street, Chicago, Ill., have just



The Imperial Hot Blast Blow Pipe,

sortment of French and Roman enameled baths and some handsome maible lavatories. In plumbing fixtures of high grade their stock contains a well selected line.

THE HAGERSTOWN PLUMBING COMPANY, Hagerstown, Md., are fitting up a new floor and other improvements.

C. H. MUCKENHIRN, Detroit, has been spending a few days among the trade in New York in the interest of the Venito pneumatic jet water closet made by him and for which Du Bois & Darrow are the New York agents.

W. P. Jones, Rutland, Vt., presided at the convention of the Vermont master plumbers, held at Burlington this week. The delegates from his city were G. H. Channell, F. II. Smith, Frank Tracy and C. E. Channell.

UNDER THE DATE of Scptember 1, 1894, the Park & McKay Company, Detroit, are sending out a 64-page catalogue printed on enameled paper and in a drab cover. The catalogue is devoted to the Utopia Siphon and other

put on the market a gasoline blow pipe, which is herewith illustrated. The manufacturers offer it as a complete tool for soldering, brazing, burning paint, melting metals, healing soldering coppers, thawing frezen pipes, making heavy soldered join's, &c. It will tun for four hours. The burner has a generator of double the usual strength, which can be regulated to furnish a flame of any size by a turn of the knob. The needle valve has a patent renewable seat which can be replaced when worn out at a cost of only 10 cents, making the torch equal to new. The reservoir is made of one piece of specially rolled brass of heavy gauge, rendering it leak proof, and yet the construction is such that the entire apparatus is light. The air valve is at the bottom of the pump, conveniently placed, dispensing with outside tubes and fixtures. The pump is very simple, supplying a strong blast and drain-ing every drop of gasoline. The reservoir is tested to 30 pounds pressure and warranted.

# STORE. THE RETAIL

# Successful Buying.

BY FRED MACEY.

It is an old saying that "troods well bought are half sold," and from the importance given by most business men to this department of their busimen to this department of their business, there seems to be considerable faith in the truth of it. A careful study of the science of buying must reveal the fact that while a buyer must to a very large extent be governed by conditions, there are still certain rules that seem to govern all transactions, and prominent among them may be named the following. them may be named the following, which will find a connection with almost every purchase in one form or another:

Study your wants, and buy only such

goods as will move.

Don't buy a new article unless there is a profit that will pay you to introduce it.

Keep close track of stock on hand. Know what sells and how much is

sold. Keep a record.

Do not allow smooth tongued travelers to sell you more than you want. When the goods come they are yours and you must pay the bill.

If you do not carry a certain article in stock and it is in your line, know

where to bny it.

Keep your catalogues and price-lists in good order. Have them complete and easy of access

Keep a Quotation Book and use it. Know, when you want anything, where you can buy it and at what

Study the cost of producing the

goods purchased.

Take good trade papers and read them. Keep posted on the changes in tariff, expiration of patents, fluctuations in values.

Solicit prices; you command a large field at small cost.

Use neat stationery. It makes a good impression.

Always find time to be courteons to the traveling salesman. It costs nothing and always pays.

Be clear and concise in the statement

of your wants.

Look upon all quotations as being subject to change, it not in base price, then in discounts, length of time, freights, &c.

Consider all quotations strictly confidential. Never give one man's price

to another.

Make price, quality and terms be the basis of a purchase. Friendship is good in its place but in business, justice only should rule.

Let dollars and cents be the first point considered in changing firms

point considered in changing firms.

Keep pos ed on new firms. Their prices are generally good. Use them, don't overlook quality, credit. &c.

If you want good prices and quick service, telegraph. It costs something to be sure, but generally pays when

done with discretion.

Calculate ahead. Ordering at poor prices, expensive telegrams and annoy-

ing delays will thus be avoided.

Work for quantity discounts. If you are not entitled to it unite with you are not entitled to it unite with another or find a jobber who is and is willing to divide up.

Work discounts, freights, packages, &c., for all they are worth. Don't forget that I per cent, of \$100,000 is \$1000.

If your purchases are large let the fact be known. Competition for your trade will be all the sharper.

Work for an inside track for articles

controlled by combinations, syndicates, &c. Use quantity, quality, treatment, time, style of packages, &c., for all they are worth.

Buy goods, prices guaranteed, then you are always on sure ground.

Contract when prices are low. To know when to contract understand the supply and demand, condition of patents, changes in tariff and other points peculiar to each article.

Adopt an order blank. Embrace in

Adopt an order blank. Embrace in the printing all the points desirable in regular orders: omissions will then be avoided.

Patronize home industries as much as possible. By so doing you con-tribute indirectly to your own business.

Be clear and concise in ordering.

Mistakes are less liable to occur. Keep a copy of all orders. Responsi-bility for errors can then be easily and surely located.

If you pay freight be sure to get all the benefit there is in water freights low classification, quantity, method of packing, &c.
Be sure that goods received are as

ordered in both quantity and quality.
Pay bills promptly. A firm can
afford to sell at a less margin to good

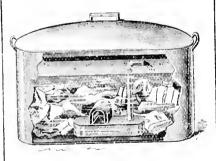
pay than to one who consumes part of his profits by collection expenses. Never forget that a small and well assorted stock is better than a large

stock. On the one hand the stock is clean and new, and money is turned oftener. On the other, stock deteriorates and its cost increases by interest and insurance on money invested. By following the above rules there

is no doubt that purchases can be made to good advantage.

## Bolgiano's Steam Clothes Washer.

The accompanying cut represents a ateam clothes washer, offered by the Bolgiano Mfg. Company, Baltimore,



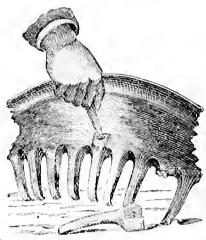
Bolgiano's Steam Clothes Washer.

Md. The washer is placed in the bottom of a wash boiler and weighted down with an iron or brick to keep it in place. Water is put into the boller until it comes within an inch of the top of the spout. The clothes are then put in snd allowed to boil for ten minutes after the water comes to a boil. At the expiration of the time the clothes, it is stated, will be all washed. The makers claim that the washer saves

all scrubbing, as it draws the dirt out of the clothes through a powerful suc-

# Adjustable Stove Tooth.

It very often happens that the fingered fire bowl of a stove has to be thrown away through the breaking or burning off of one or more of its teeth, whereas if new ones could be supplied it could be still further utilized and made almost as



Adjustable Stove Tooth.

good as new. It is to supply a want of this kind that Harkins & Willis of Ann Arbor, Mich., have just placed upon the market an adjustable stove tooth, which is made in four sizes and which; it is claimed, will fit any bowl. The engraving which we present herewith shows so clearly the appearance of the teeth and the manner in which they can be applied to the fire bowl that extended explanation would seem superfluous. The makers state that these teeth are meeting with great favor at the hands of the trade and the demand is greater than at first anticipated. The circulars which are issued relating to the goods carry full direc-tions for setting the teeth in connection with both light and heavy bowls.

LEVI HEV & Co. of 311-313 State atreet, Rochester, N. Y., refer to their Excelsior ateam cooker as a very satisfactory arrangement for use in connection with an oil, gas or gasoline stove. It can, however, be used on any cook stove with equally satisfactory results, and the statement is made that there is no possible danger of burning the food. The arrangement of parts is such that every variety of meats, vegetables, puddings, &c., can be economically cooked by steam at the same time, without mingling the flavors, and this by using only one griddle hole of the stove. The makers also state that food can be kept ready and warm for hours by means of one of these cookers without burning, drying or loss of flavor. The cooker is also convenient in preparing fruit for canning, or making any kind of fruit sauce. Still another advantage is that sauce. Still another advantage all variety of food can be prepared, and all variety of food can be prepared, and any one put in or taken out without disturbing the others.

### MEMORANDA.

CHAPMAN & HILLS have opened a hardware and stove store at Lorain, Ohio. The firm will also do heating and plumbing work.

J. MERTZ & Fons, agents for the Peninsular line of stoves in Sandusky, Ohio, are remodelling their store, putting on a new front and increasing the facilities for handling their large business.

Landers, Frank & Clark, New Britain, Conn., are manufacturing a line of square and clipped pointed putty knives, with smoothly turned round handles. The blades are fastened into the handles by a patented process, with the advantages of a handle that fits the hand, having no rivets to come out, no projecting tangs and no corners. The blades are furnished with beech, red and black handles.

THE LARGE and substantial volume issued by the Standard Stamping Company, St. Louis, Mo., will be of value and service to many. The catalogue measures 11 x 9 inches in s'ze, is bound in stamped cloth and contains over 400 pages. The variety of goods alluded to is most extensive, and covers sheet metal ware, tinners' supplies, house furnishing goods, &c., in great variety. At the beginning of the book are two views of the Standard Stamping Company's warehouse and works, following which is a list of the departments into which the volume is divided. The enumera-tion of these sections will indicate the contents of the book: Pieced Tinware, Japanned Tinware, Deep Stamped Ware, Shallow Stamped Ware, Spoons, Stamped Trimmings, Tinners' Miscellaneous Supplies, Tin Plate and Metals, Tinners' Tools and Machines, Galvanized and Black Sheet Iron Ware, Gss. Oil and Vapor Stoves and Trimmings, Stove Hollow Ware, Enameled Iron Ware, Wire Goods, Wooden and Willow Ware, Miscellaneous Goods. The book is pro-fusely illustrated and the printing is well done.

MIZENER & ORTH, Port Clinton, Ohio, were awarded first prize on stoves at the Ottawa County Fair. They handle the complete Peninsular line, the elegant appearance and merit of which elicited much praise.

# Trade Notes.

B. D. Duggan, 207-209 Lake street, Chicago, reports the following sales of the Richmond Warm Air Furnaces: Patrick Kelly, 819 St. Louis avenue, 2; M. R. Leyden, 1613 Monroe street, 1; Mrs. J. Fourtellote, 2197-2199 Adams street, 4; Mrs. M. Cair, 20 Rumsey street, 1; Mrs. M. Cresr, 15 North California avenue, 2; Hans Anderson, 2021 Lexington street, 3; Thos. Wrixon, Sheridan drive and Evanston avenue. 1; Mrs. M. Ayers, Adams street and West Forty-fifth street, 2; Charles Linden, Morton Park, 1; Joseph Thinnis, Lawndale, 1; Hopkus Bros., 1054 Millard avenue, 8.

AMONG recently incorporated companies in New Jersey is the Trenton Brass Company of Trenton, N. J. The new concern, with a capital of \$10,000, will manufacture Brsss Goods of all kinds. Chas. H. Baker, Cornelius Trafford and Claude E. Fell are directors.

THE AMERICAN CAN & STAMPING WORKS LIMITED, have been incorporated at New Orleans, La., with a

capital of \$50,000. The directors are Chas. B. Emmerich, George H. Dunbar, Jules Aldidge and W. T. Seaton of New Orleans.

THE NICKEL PLATE STOVE POLISH COMPANY, Chicago, Ill., make a number of Polishes to which they direct attention in their advertisement elsewhere. They include the Black Jack Paste Stove Polish, Black Eagle Stove Polish and Niekel Plate Stove Polish.

THE HANTUN BOILER for steam or hot water heating is the subject of an announcement elsewhere made by the Kewanee Boiler Company, Kewanee, Ill. The trade are invited to write for new catalogue and prices.

We are independent to the Stoves and Hardware Publishing Company, St. Louis, Mo., for a chromo lithograph of the new St. Louis Union Station, which is a large plate measuring 32 x 40 inches, printed in ten colors on fine plate paper.

JOSEPH HUSE & Son, 95-97 Blackstone street, Boston, Mass., make an annonneement respecting their bargain package containing 2 pounds of North Carolina Mica of assorted sizes, which they will forward to any part of the country for \$5.

Notice is issued to the trade under date of September 22, by the Specialty Wood Working Company, proprietors of the Packard Enameling Works, Warren, Ohio, that their articles of incorporation have been amended, changing the capital from \$10,000 to \$50,000, and the name to the Packard Enameling Company, the officers and directors remaining as heretofore. They have added new machinery to their plant, largely increasing the output, and announce that they are new in a better position to ship goods promptly than ever before. They also state that they have made a number of improvements in their enameling process.

G. A. Crosby & Co., 176 and 178 South Clinton street, Chicago, have issued the fourth edition of their catalogue of Presses, Dies and special ma-chinery for sheet metal workers. This edition is much more elaborate and comprehensive than its predecessors, thus exhibiting in a striking mancer the growth of this establishment, whose trade not only extends to all parts of the United States, but reaches to numerous foreign countries. The new catalogue covers 188 pages, and is handsomely printed and profusely illustrated. Several introductory pages are devoted to an enumeration of special points which are embodled in the machinery manufactured by this firm and general directions for its proper management. Power Presseaare then consid. ered. Illustrations are given of a great variety of styles for punching, making can caps, cleats, pail ears, &c.; forming covers for large tin packages; for heavy punching and stamping, as required by saw and implement makers; for cutting out large articles, such as pieced tinware, boiler covers and bottoms, stove boards, coal hod bodies, steel stove tops, &c.; for cu ting, punching and forming nuts, washers, &c.; Drop and Serew Presses, hand and foot Lever Presses, Trimming Machines and Crimpers are also shown in a profusion of styles. A special machine shown is the patent automatic double headed Crimper, which crimps at the same time both ends on the bodies of round cans at a very high rate of speed. Their line of can making machinery has been extended very considerably of late, a number of very ingenious machines having been devised which increase the daily product of a plant and therefore reduce the cost. Among these is an automatic Soldering Machine and an automatic Can Testing Machine. For those whose operations are not on a very large scale a full assortment of suitable machinery is shown, operated by power or hand. Tinners' Machinery is treated very comprehensively, as well as tinners' tools. The Clark kerosene oil system for heating fire pots and il atera is also illustrated and described.

The trade will be interested in the announcement made on another page in this issue by Stransky & Co., 27 Murray street, New York, in which they state that their offer to send one piece each of the different articles of Enameled Ware, &c., as samples at special prices was accepted by 33 dealers, 27 ordering goods from the samples and six sending in a second time. The renewal of the offer will be of interest to the trade.

THE ANNOUNCEMENT elsewhere of the Bellaire Stamping Company, Harvey, Ill., directs attention to the Columbian Enameled Steel Ware of their manufacture. The illustrations in the announcement show a variety of goods and also a general view of the factory at Harvey.

BUCK'S STOVE & RANGE COMPANY, St. Louis, Mo., in their double page advertisement in this issue show a few cuts of their Buck's Steel Ranges, which they refer to as being "up to dat;" in every particular. They advise us their sales of these Ranges have been very heavy, and that they are in receipt of many letters of commendation from the trade referring to this line of goods.

The double page advertisement of the Perfection Furnace Pipe Company, Toledo, Ohio, is of particular interest at this time of the year when so much is being done in hot air work by the tinners and furnacement throughout the country. A very large assortment of Furnace Fittings is illustrated in the announcement, and the lower prices that will prevail hereafter are alluded to.

WE ARE ADVISED that the American Tubing & Webbing Company, Providence. R. I., have served papers on manufacturers for infringing their patents on drop light and gas stove Flexible Tubing.

The Quaker City is not to have elevated railroads at present. After a long and persistent struggle the syndicate of New York and Philadelphia capitalists, who had actually begun preliminary operations under charters granted by the State of Pennsylvania, have given up the effort to give Philadelphia an L system on account of the numerous obstacles placed in their way. A section of the road, already built, has been taken down and shipped away as old iron, and the whole project is definitely abandoned.

A franchise has been granted by the Mexican Government to a new line of steamers which will compete with the Pacific Mail Company for the Mexican trade between the Gulf of Tehuantepec and San Francisco. Seven steamers will be run on the line, which, it is announced, will be in operation within a few months.

# STOVE TRADE NOTES.

## The New England Stove Trade.

The hot weather of the past mouth seems to have been an important factor in the stove trade of New England. The moderate stocks laid in by retailers early in the sesson have not been drawn upon to any appreciable extent, and it continues to be the disposition of the trade to keep up the hand to mouth buying policy which has been popular for some time past. This results in many small orders for quick delivery and creates a semblance of activity among the manufacturers. Most foundries in this section are running fairly full and are piling up a little stock, but in no case more than is likely to be needed even under present conditions. With the advent of colder weather a largely increased demand is expected, and there is hardly a reasonable doubt that this promise will be fulfilled. The repair trade is gradually becoming active, and jobbers of a variety of goods pertaining to the stove trade are doing a satisfactory amount of business in view of the conditions. Oil stoves continue to move freely; in fact, there is a constantly increasing demand for this line. There appears to be considerable business doing in furnaces and most of the manufacturers in this vicinity are rather crowded with orders.

## New Jewel Ranges.

Important additions have been made by the Detroit Stove Works to their line of ranges. Samples are now ready for inspection on the floor of their sample room in the Chicago warehouse, 2921 to 2933 La Salie street. Conspicuous among them stands the new Jewel steel range. This is a piece of work in which important improvements have been made both in design and construc-tion. A marked departure has been taken from the conventional style of ornamentation in steel ranges. The front, with its background of plain, smooth sheet steel or iron and flat nickel bands on the doors, has given way to a highly ornamented cast iron front richly carved, with doors bordered by nickeled carved work and the vertical corners also trimmed with carved columns. A highly polished nickeled steel band borders the top. The sup-ports of the high shelf are also faced with ornamental carving. The general effect is very pleasing. A weak point in many ranges is the oven bottom, which is liable to warp or buckle. In these ranges will be found a sectional oven bottom, made of sheet steel in four sections and warranted to stand the severest tests. The ranges are further provided with brick or iron linings, duplex or flat grate, poised oven door, high shelf or high closet

with rolling top, and a portable reservoir attachment that can be fitted to any range without the use of a water front. Two sizes are made—18 and 20 inch ovens.

The Prize Jewel is a new four-hole cast range adapted to the use of hard coal, soft coal, coke or wood. It is built on handsome lines and is richly orne-mented, the moldings being beautifully carved. The swell front is a fine piece of workmanship. Two styles of feed are provided, pouch and front feed. It is supplied with a draw hearth, brick or iron linings, duplex or draw center grate, two nickeled tea pot shelves, a fine nickeled guard on top of the high shelf or closet, and nickeled panels on oven doors showing the new trade-mark. The top end and outside oven ahelves are of an ornamental design, with the new trade mark inserted in the center of each. These ranges are made with 16, 18 and 20 inch ovens, and are furnished in all styles, with or without reservoir, high shelves or high closets.

The Faultless Jewel is the company's The Faultiess lewel is the company's new gas range, which has been received with marked favor owing to its rich finish as well as its good points as a cooking device. The front is exceptionally handsome, bearing a profusion of carved molded work on doors, end columns, skirting and legs, while the door borders and handles are nickel plated. It has four top cooking holes, one of which has an auxiliary simmering burner, and another has an auxiliary large burner, appropriately called a giant burner, for rapid heating. A water heating attachment, which is furnished if desired, has two cooking holes to utilize the waste heat. The oven is large, being 18 inch, while below it is a broiling compartment operated by the oven burners. The oven doors are poised. All valves are needle valves. A pilot light is used for igniting the oven burners.

# The Mt. Penn Stove Works

of Reading, Pa., have issued a 12-page supplement to their catalogue of 1893-4, covering their latest productions. Ranges shown are the Penn Item, a low priced six-hole range in four sizes, cut top, with or without reservoir and with either duplex or plain flat grate; the Penn City, a new and cheap solid end hearth six-hole range in four sizes, cut top, bailed ash pan, with or without reservoir and with either duplex or plain flat grate, handsome and attractive in appearance, and the Penn Chicf, a range similar in appearance and style to the Penn City, but having a narrower bottom. sheet iron goods are noticed the Penn Coin, a low priced straight draft surface burner, with large sliding feed door, deep ash pit, shaking center discharge grate and poke hole, fire brick lining extending above the door and surmounted by a handsome spun urn; the Penn Pride, a cheap surface burner, with half revertible flue, similar in appearance and design to the Penn Coin and having lower check

Penn Pearl, a surface burner with full revertible flue of the same design as the Penn Pride, but having aide foot rails. The Penn Chart and Penn Merit, handsome new parlor stoves, are shown and are made with straight draft and full revertible flue and in the latest style of ornamentation, topped with urns of artistic design. The supplement concludes with the Palace cellar furnace, described as a very cheap and effective furnace, and particularly commended on account of its low price. It has a large fire surface, improved center discharge grate, sheet steel gas proof drums and cast iron radiator immediately above the fire.

## A New Trade-Mark.

A new trade-mark has just been adopted by the Gem City Stove Mfg. Company, Front and York streets,



Trade-Mark of the Gem City Stove Mfg. Company.

Quincy, Ill. It comprises the words "Gem Stoves and Ranges" in combination with a design of suggestive character. The illustration which we present herewith shows clearly the features of the trade mark.

## The Raymond & Campbell Mfg. Company.

A stove catalogue which will take a high rank among the trade publications of the year is that just issued from the press by the Raymond & Campbell Mfg. Company of Middletown, Pa., and with New York office at 244 Water street. The size of the page is somewhat larger that the general run of atove trade catalogues, but is such as to afford the opogues, but is such as to shord the op-portunity for the use of cuts of liberal dimensions together with ample de-scriptive matter. The bedy of each page, upon which appears the printed matter, is of a light buff tint, forming a strong contrast with the black of the letterpress. The binding is in dark green paper covers with embossed side title in old gold. The frontispiece consists of a bird's eye view of the company's plant at Middletown. An inter-esting feature of the opening page is a classification of castings for repairs. dampers for the perfect control of the fire and nickeled trimmings; and the

as the Model Perfect, the Grand Perfect, the Capital, which has been redressed for this season; the Clifton, the New Pullman, which has also been redressed: the Anna and the Dollie, the latter being a new construction brought out to meet the demand for a range which the dealer can retail at a very low price. The cook stoves are represented by the Grand Susquehanna, a four hole construction embodying the latest improve-ments; the Grand Climax, the Grand Pride, the New Susquehanna, Ladies' Pride, the Keystone, the Expert, the Liberty and Perfect Miner. The heaters are next considered, being represented with the Art Perfect full revertible base burner and double heater occupying the place of honor. The company have spared no trouble or expense to make this stove complete in every respect, and it is offered the trade in two sizes. The Perfect Gem, a medium priced square stove offered in three sizes; the Royal Grand, a full revertible that heater of attractive design made in two sizes; the Art Jasper, made as a single and double heater; the Hustler, an attractive parlor stove made in three sizes direct draft and three sizes revertible flue: the New Royal, a round base burner; the Grand Active, a surface burner for hard or soft coal or wood; the New Active egg stove, the Autumn, a cylinder surface burner, and the Perfect Franklin, as well as an extensive line of cheaper constructions, make up the assortment. Attention is also given to the Conqueror furnace, made portable form and for brick setting. The catalogue concludes with a long list of hollow ware, mica, stove bolts, registers, &c., together with remarks relative to repairs, tables giving the average weight of castings for repairs, and an illustrated description of the Lindemuth Sun steam and hot water

### New Detroit Heaters.

The Detroit Stove Works have not been dismayed by the general depression in business, but have this year brought out a number of new patterns on which they have not only expended much money but much thought and a very great deal of taste. They have samples of these goods now on exhibition on their sample floor in their Chicago warehouse at 2921 to 2933 La Salle street. Prominent among them is the new oak stove the Detroit Jewel. This ia not an incased oak but a genuine oak with all the special features of the oak stove preserved, embellished by an ornamentation which was an inspiration of the designer. From the front it would appear to be a high art base burner, having the richly carved molded work forming the frame surrounding the door, running up to the top piece and down to the base. The body is made either of steel or cast iron. The steel body on the sides and in the rear tesembles the typical oak, but the cast body is most elaborately carved to correspond with the rich front. The grate is shaken through a small door in the top of the ash pit door. This small door also serves as a draft door in place of the usual sliding register. All doors have special cam shaped latches, which draw them perfectly tight, although the mounting is done so skillfully that this would seem almost unnecessary. These stoves have a swinging nickel top, with cooking hole beneath. Ventiducts run up each corner, taking air in at the bottom and discharging it heated at the top. The nickeled parts add greatly to the beauty of these stoves,

being done very artistically. The feed door has a superb nickeled exterior, which is prevented from tarnishing by an interior lining. Four sizes are made with steel bodies and four sizes with cast bodies. The company have also brought out another line of oak stoves named Oak Jewel. These are also handsome stoves, but are less elaborately decorated than the Detroit Jewel just described. They are well finished, with doors of the same type as the Detroit Jewel and in every respect well made and carefully mounted. are furnished in four sizes with cast bodies and five sizes with steel bodies. A new line of surface burners has been brought out named the Radiant Jewel. These are base heaters as well as surface burners. Four sizes are made-namely, 15, 17, 19 and 21 inch bodies. are made with cast fronts and Russia iren bedies. They have swinging tops, under which is a baking oven. The nickeling is elaborate, covering the base skirting, side rails, hood over ash pan door, number plate, trade-mark panel over feed door, and top band. They have a circular flue and ventiduct attachment, draw center grate and brick or iron linings. A east iron lining extends above the brick to protect the sheet iron body. These are remarkably well proportioned atoves and should take high rank among surface burners.

# Cleveland Co-operative Stove Company.

We are indebted to the Cleveland Co operative Stove Company, with main office and works at Cleveland, Ohio, and with branches in Springfield, Mo.; Chicago, Ill.; Minneapetis, Minn., and Chattanooga, Tenn., for a copy of the twenty-seventh annual catalogue and price-list of stoves, ranges and hollow ware, &c., which they manufacture. It is a very full catalogue, comprising something like 180 pages of letterpress, profusely illustrated, printed on a good quality of calendered paper and substantially bound in board covers, with side title in old gold. In offering this volume to the trade the company call attention to the fact that all of their first class cook atoves, ranges and heaters are now provided with portable bases instead of legs. The bases are entirely new in style and design and add very much to the appearance and saiability of the stoves to which they are applied. The company have also added many other desirable improvements as well as brought out new cook stores and heaters, making their line extensive and prices low. They also extensive and prices low. They also refer especially to their Black Hussar wrought steel range, which is entering its second year of popularity. Two changes have been made for this season, one being the substitution of three movable sections with two covers to each section in place of last year's loose centers, and the furnishing of eight or nine top, as desired. Her Majesty is a cast iron range of attractive construction, which the company are offering the trade in four sizes. The manufacturers refer to their line of ranges as comprising ten entirely distinet and separate patterns, with innumerable styles and sizes; also 22 distinct varieties of cook stoves for coal or wood, comprising an assortment of 150 sizes and styles. The ranges occupy something like 25 pages of the catalogue, and are offered under such names Torquoise, the New Paradise, the Radiant Linden, the Prize Linden, the Coronet, the Aunt Nancy, the Tele-

phone, the Artisan, which is a new fivehole range for coal or wood, and the Savon. The cook stoves till nearly 40 pages, and comprise, as already stated, very extensive assortment. Some of the more prominent constructions are the Black Hussar, the Loyal Linden, the New Iron Mountain, the Front Rank, the Iron Chief, the Early Bird, the Pearl, the Sure Thing, the Good Business, the Santon, Cock Robin, the New Black Hawk, the Buck Eye, the Home Treasure, the Cuckoo, the Bright Side, the Oakland, Prairie Flower, the New Duchess, Winona, Brechwood, Grand Rapid and Granger, many of the latter being wood cooks. The 60 pages latter being wood cooks. The 60 pages which follow are devoted to heating stoves, of which the leader is the Royal Linden, a square base burner, made in three sizes. The Skylark is a new revertible the base burner for hard coaloffered in four sizes. The At Home is in the nature of a Franklin, having blower jointed in the center and folded up from the top. When folded it fits reatly between the projecting nickel plated brackets in the upper front, with the mica or lower section only exposed, showing the full capacity of the fire pot. It is intended for hard coal, soft coal or coke. The Gilt Edge is a new square surface burner with tea kettle attachment, made in two sizes and intended for burning coal, coke or gas. A great variety of other heaters are shown, embracing surface burners, cottage parlor stoves, oak stoves, laundry, globe, cannon, Todd and box stoves. A list of hollow were and an alphabetical index completes the work.

#### ODD PLATES.

RATHBONE, SARD & Co., Albany, N. Y., are advised that one of their Brooklyn customers captured first premium on Acorn stoves at an exhibition recently held in his section. Last week Acorn stoves were exhibited at the fairs in Watertown and Schoharie, New York State.

FLOYD, WELLS & Co. of Royersford, Pa, have made a number of extensive improvements in their foundry during the past few weeks. Among these may be mentioned a large cupola and the erection of a coke house. The company expect to run full capacity the balance of the season, as they have a large number of orders on hand.

SECRETARY H. N. REYNOLDS of the Craig Reynolds Foundry Company, Dayton, Ohio, made a call on *The Metal Worker* while on a pleasure trip to New York, the Triumph line of hot air furnaces being forgotten for the time.

WALTER E. CLARK of the Phillips & Clark Stove Company, Geneva, N. Y., will probably represent his district in the Legislature of New York State next year, as it is one of the districts where the majority makes a nomination equivalent to an election, says Henry Glesson, the political sage of stove ornament fame from Beekman street, New York.

THE 1894-95 CATALOGUE OF GAS HEATING STOVES of W. M. Crane & Co., 838 Broadway, N. Y., contains 32 pages, in a red cover, with their Vulcan trade mark on the front and a cut of their factory on the back cover. An introduction calls attention to the prominence assumed by gas as a fuel. The first three pages are devoted to the new Vulcan gas grates and fire place heaten. The next nine pages show their perforated heating atoves and radiators, followed by cylinder heaters, the Perforaters.

tion stove and fire place heater, gas logs and andirous. The new Vulcan hot air furnace and hot water heater are then shown and their features and the convenience of gas for large heating fully described. These are followed by ceramic kilns, independent connections and a page is devoted to the Perfect controller for regulating the pressure of gas on the burners in a building to prevent waste.

THE PENNSYLVANIA GAS FURNACE COMPANY of 77 West Chippewa street, Buffaio, N. Y., are meeting with a good demand for their furnaces, and are kept very busy filling orders. They state that smong other places they have shipped them to Canada, where they are in successful operation with illuminating gas. The company had one of their furnaces on exhibition at the recent Toronto fair, where it excited a great deal of interest on the part of visitors. The display was made by A. II. Dixon of 43 Blower street, East.

The works of F. & L. Kahn & Brothers, Hamilton, Ohio, are running full in all departments with a complete force of hands. Legard Kahn is reported by a local paper as stating that business is fair and showing gradual improvement.

THE ECONOMY GAS STOVE COMPANY of Decatur, 111., is the name of a concern recently incorporated with a capital stock of \$5000. The incorporators include Gustavus Heidel, Henry Mathews, Albert Mathews and J. C. Hostetter.

THE LARGEST HEAT ever made by the Lexington Stove Foundry Company of Lexington, Ky., was on Fricay, September 14, when 10,300 pounds of pig iron were melted into atove plates. It is stated that the demand for the company's product is such that they will continue to melt not less than this amount each day. The goods are being shipped to various parts of the United States, and it is said that the local demand has become so atrong that the company are compelled to maintain a large retail store at 123 East Main atreet.

IN CONVERSATION with a representative of a Nashville paper, H. W. Buttorff of the Phillips & Buttorff Mfg. Company, that city, is reported to have expressed himself regarding the business outlook as follows: "Our business year commences in July, and a look into the business from July, 1893, to July, 1894, shows a vast increase during the latter months. During July, August and the 15 days of September past the business largely exceeds that of the similar period of 1893. There seems as increased demand with us from all parts of the country, even now, and we do not expect our largest trade until later in the fall. Many of the country merchants and other customers are delaying their orders, but promise to buy later in the season. This indicates, you can see, that they are buying with more care than in former years, and also that we may look for a largely increased trade for the balance of the year. We are making additions to our force in the foundry every day and are now working at a full capacity, which will have to be enlarged. In every department our business shows a material increase and of course other lines of business are experiencing a like benefit from an improved outlook of affairs during the last few weeks. If our business is a criterion, Nashville is cer-tainly tooking up and has the promise of presperous times.

THE MICHIGAN STOVE COMPANY announce that they have adopted a protective system of numbering for the henefit of those who handle their stoves and ranges. The point is made that consumers when shopping round from store to store compare cooking goods by the numbers on them, which designate the size of the cooking holes and the size of the oven. This, it is claimed, is unfair to those manufacturers who make their ovens of the full size thus indicated. Some manufacturers, for instance, mark their oven size as measured with the swell of the oven door, or if a cooking stove with the swell of both doors, or even by the measurement Thus there of the body of the stove. may be the difference of a full size between one 8-18 stove and another stove marked 8-18. The Michigan Stove Company have decided to change this system so that consumers cannot thus carry the numbers from one store to another and make comparisons on that basis. They retain the cooking hole number, but the other number is arranged on an original basis. Taking a 14-inch oven as the smallest oven they are likely to make, they number it 1: a 15 inch oven is numbered 2, and so on. Thus an 8-14 stove, old style, becomes 8-1 in the new style. They have also instituted another change. Hereafter, instead of placing the year on their stoves they will use a letter, so that consumers will not be under the impression that they are buying an old pattern stove, and dcalers will not have a stock of goods to be sold at a dis count merely because of the date on them

RATHBONE, SARD & Co 's Chicago house reports a steady increase in the volume of business from Northwestern patrons. The company are doing an exceptionally good trade in the Acorn Radiator, which is the pioneer of the air tight or incased stoves, and as such has proved a success in districts de-pending upon soft coal. They claim that the introduction of the air tight stove marks as distinct an epoch in stove history as the invention of the base burner. They are also doing well with their new steel range. The foundries at Aurora are running full. These works did remarkably well the past summer, continuing in steady operation when other stove foundries were closed. In the company's sample room in Chicago is shown a specimen of the new mammoth sign now being furnished to their best agents. It is a huge acorn made of sheet steel, painted olive green and lettered in pure gold leaf "Acorn Stoves and Ranges." It is claimed that this is the largest piece of work ever stamped from sheet metal. Two sheets are used, one for each side, which are bolted together after being stamped. A sheet containing 12 square feet was required for each side. It is a very fine piece of work, the shape of the emblem being well adapted to a sign of this character and made of this material. Its size will make it conspicuous for a long distance when hung in front of a store, while its striking appearance cannot fail to attract attention.

THE ENCELSIOR MFO. COMPANY, St. Louis, Mo, advise us that their September business will compare very favorably with the corresponding month for the past several years. A feature of their business is the very heavy demand for their Charter Oak stoves and ranges, which seem to grow more popular, as is evidenced by the steadily increasing demand for them from year to year. In the way of heating stoves they also report a

good trade and state the demand for their "hot blast" stove has greatly exceeded their expectations.

ECONOMY GAS STOVE COMPANY have been incorporated at Decatur. Ill., with a capital stock of \$5000. The incorporators are Gustavus Heidel, Henry L. Matthews, Albert Matthews and J. C. Hostetter.

WM. STRAUBE, who has been representing the Quick Meal Stove Company, St. Louis, in Illinois for some years past, has resigned and embarked in other business. This territory will hereafter be taken care of by H. P. Gingerich, who has for some time been Mr. Straube's assistant, and is therefore familiar with the wants of the trade in that section.

QUICK MEAL STOVE COMPANY. St. Louis. Mo, have about completed the improvements made in their Quick Meal gasoline stove, and wilt in about three weeks time have photographs of the stove in its improved form for the inspection of the trade. Their traveling men will start out about October 20.

L. CANFIELD, manager of the New York office, at 284 Pearl street, of the Danville Stove & Mig. Company, Danville, Pa., has added some new attractions to his line of square parlor heaters. The Beaver still occupies the position of honor. The Princess Beaver is a new square ventilator and double heater with nickeled skirt, foot rests. name plate and dome, and a handsome top ornament of copper and Venetian iron. It is a full revertible flue self-feeder, with dust flue and either the Ransom patent grate or a slide center grate. It has all the latest conveniences and is made in three sizes, Nos. 13, 14 and 15. The Ideal Beaver is a handsome but less coatly square heater with nickeled skirt, foot rails and dome, with ash pan, dust fine, magazine, large fire pot and center slide grate. It is made in several sizes and should prove an every day seller.

THE GLAZIER STOVE COMPANY Of Chelses, Mich, are distributing an exceedingly neat and well printed catalogue of the Brightest and Best oil and gas stoves, which they manufacture in great variety. The volume measures 45 x 7 inches, and is bound in attractive paper covers, with embossed side title in silver and bronze. The introductory pages are given to announcements to the trade, telegraphic code, reference to some of the leading features of the Brightest and Best heaters and an illustrated description of the brass tank, burner and wick tube. The oil heaters occupy a number of pages, following which attention is directed to combination heaters and cook stoves. in turn, are followed by constructions intended especially for cooking, lamp stoves, extension tops, ovens, Brightest and Best gas stoves, burners, wicks, &c. The engravings are well executed, the printing is on a good quality of calendered paper, the corners of the pages are rounded and the general make up of the catalogue is such as will find for it a place in the dealer's collection of stove trade literature.

THE THOMAS, ROBERTS, STEVENSON COMPANY of Philadelphia made a very interesting display of their gauze door range at the Food Exhibition recently held in Chester, Pa. Visitors were enthusiastic over the performance of the range and watched with no little curiosity and wonder the cooking operations of Miss Cross, who presided. We understand from the company that a simi-

lar display will be made in Wilmington, Del., the coming week.

THE MANHATTAN BRASS COMPANY, with cffice at 338 East Twenty-eighth street. New York, and with Western sales department at 506 Masonic Temple Building, Chicago, have brought out a 12-page pamphlet relating to Star heater oil stoves, which they manufacture in several styles and sizes. The goods are illustrated and briefly described, prices being given in each case. The pamphlet also shows the Star combination neater and cook atove, for which strong claims are made.

HENRY N. CLARK, 103-105 Blackstone street. Boston, favora us with a
copy of a stove board price list for 1894,
which he is distributing to the trade.
The little pamphlet is oblong in shape
and carries illustrations and prices of a
varied assortment of stove boards. We
a'so have from Mr. Clark circulars relating to the Blazer stove polish;
Blackene, a benzine paste stove polish;
the Erie extra finished hollow ware and
stove furniture; the Alaska pokers,
lifters, shovels and fire sets, together
with an illustrated catalogue of central
draft circular burner oil heaters made
in four distinct styles and sizes.

The S. M. Howes Company of 40-46 Union street, Boston, Mass., are the authors of an interesting publication of 28 pages, entitled, "Artistic Furnishing for Fire Places in Brass, Wrought Iron and Cast Iron." The designs which are presented of pertable basket grates are of a high order of merit, and are made in sufficient variety to meet the requirements of the trade. These basket grates are mounted on easters, with dump center grates. A varied assortment of brass andirons is also shown, as well as iron andirons in imitation of wrought iron, brass fire sets, genuine wrough iron fire sets, brass lenders, imported folding sereens, spark guards, ash dumps, fire place dampers, ash pit doors and broiler doors.

A. WEISKITTEL & Son. Baltimore, Md., are distributing fancy stickers carrying their trade-mark, name and address, all printed in red upon a light yellow ground.

T. D. Marson is the agent at Holley, N. Y., for the Splendid and Stewart goods, manufactured by the Fuller & Warren Company, Troy, N. Y. Mr. Matson is an enterprising dealer and believes in the use of printers' ink in directing the attention of the public to what he has for sale. He carries a good assortment of heaters, cock stoves and ranges, and also includes in his assortment the Art Laurel and Challenge oil heaters.

"THE ROCHESTER DIRECTORY OF RANGES made by the Fuller & Warren Company of Troy, N. Y.," is the title of a 20-page pamphlet which reaches us, bearing the imprint of Levi Hey & Co., 311-313 State atreet, Rochester, N. Y. Attention is first given to the grates and fire box employed in connection with the ranges made by the Fuller & Warren Company, following which are testimonials, together with names and addresses of those people in Rochester who have used the company's goods,

THE ART STOVE COMPANY, Detroit, Mich., made an interesting display of Laurel stoves and ranges at the Michigan State Fair recently held in Detroit. A careful list was kept of persons visiting the exhibit, and it was found that the average number of dealers inspecting the display each day was 18, with a

total of 180. So far as the company are concerned the fair is said to have been a decided success. They state that the judges awarded them first premium blue ribbon, also a special premium for high grade workmapship and the complete exhibit.

THE DETROIT STOVE WORKS, 12troit, Mich., send us a sample package of advertising matter which they are distributing to their friends in the trade. It is made up of illuminated cards, on one side of which is matter relating to Jewel stoves: a memorandum book, which the dealer will find useful, and a slip carrying an extract from the New York Tribune. entitled "Wasteful Economy in the Kitchen." The idea of the writer is that the wheels of a household will move much more smoothly if less money is spent on furnishing the drawing room, and more in supplying the kitchen with labor saving appliences. One of the essentials is a range or stove, and the one recommended in the article is the Jewel. The package of matter also includes a sample sheet of the letter heads which the company sell to dealers. The same quality of paper is said to be used for their own note heads, bill heads and statements, and the stationery is put up in blocks of 100 sheets each. ous kinds of stationery with dimensions in inches are enumerated and prices given for 500 and 1000 lots.

THE MARCH - BROWNBACK STOVE COMPANY, Pottstown, Pa., are introducing some new goods, among them being the Puritan, a sheet iron direct draft double heater, with a handsomely ornamented open screen around the fire pot, square base and nickeled side rails, and the Polarius globe stove, with square base, plain cylinder, corrugated inside sliding door, nickeled side rails and Eelipse or draw center grate. They are also introducing an improvement to their Crown hot air furnacea, in the way of a new cast iron self cleaning drum, the joints of which are said to be absolutely water tight, and consequently gas tight, and consequently gas tight, and consecular adapted to the use of soft coal. The surface of the drum is pinned, thus increasing the radiating aurface. Its self cleaning and gas proof qualities, the makers claim, give it an advantage over all other drums in use for soft coal. The same drum can be utilized in the Crown combination hot air and hot water heaters, as it contains recesses suitable for east water heaters of varying heat generating surfaces. The Crown furnace is made with sand joints, is strongly built, with a fire pot ribbed on the inside and allowing of a supply of air on the outer circumference of the fire to completely consume all the gases liberated in soft

THE MICHIGAN STOVE COMPANY have brought out an entirely new line of stoves and ranges, at prices to suit the times, which will be made under the name Michigan. In a handsomely printed circular, just received, this is alluded to as "the sensation of the sea-The circular illustrates and describes the Michigan cooking stoves, named: Grand Michigar, for coal or wood: Home Michigan, for wood only, and Loyal Michigan, also for wood The ornamentation is rococo, being its first application to stoves, and the illustrations show it to be very effective and pleasing. The atoves are otherwise well finished in every respect and are made in ten sizes with square top and four to six sizes with reservoir. The company are also offering to the

trade toy stoves which are miniatures of the Columbian Garland steel range. They are complete in detail and cooking utensils are furnished with each.

THE BANSION STOVE COMPANY, Beckman and Water streets, New York, have list fielded pointing red and built a No. 52 no Bay State furnace for brick setting, which attracts the attention of all pessers by.

THE R II. Date: Company, New York, are showing the Champion Roaster, an oven which can be used with gas, oil or gasoline stoves, on the top of ranges, and can be used with convenience by campers. It is so constructed that there is constantly a circulation of air within it, and is said to do excellent work with meats, poultry and game, as well as pastry, and is an article that can be used with advantage all the year round.

IN AN ITEM referring to the excellent trade enjoyed by the Dippo Mfg. Company. Chagrin Falls, Ohio, published in *The Metal Worker* of September 22, we inadvertently referred to a Cincinnati effice. The salesrooms of the firm are, however, located in Cleveland, as yet they having no Cincinnati effice.

A beautifully executed crayon portrait of the founder of the New York Trade School has been recently placed in the office of that institution. The late Colonel Auchmuty was always averse to having his likeness taken and no recent portrait of him was in existence at the time of his death. The present drawing is therefore copied from the only likeness available—a photograph taken several years ago—and presents him as younger in appearance than he was when known to the majority of our readers, who saw him only in his trade school days. Nevertheless, the likeness is said to be excellent of the man as he was in his early prime. The portrait was presented to the trade school by Colonel Auchmuty's widow. Mrs. Auchmuty keeps up a lively interest in the affairs of the institution which absorbed so large a share of her husband's interest and affection.

The trade school of the Pratt Institute, Brooklyn, commenced its winter session on Monday, September 24. All the classes were well filled. We are informed that, considering the recent hard times, the applications for instruction in the varicus trades, particularly in the departments of plumbing and carpentry, were well up to the average, and the outlook is decidedly encouraging.

News comes from England that two of the most influential and wealthy of the British trade unions—those of the boiler makers and shipbuilders—have issued a joint manifesto denouncing the socialistic platform adopted by a majority of the delegates at the late Trades Union Congress, at Norwich. This movement, it is said, has the support of a number of other unions, which desire to confine the operations of labor organizations to trade matters alone as apart from politics.

The South Metropolitan Gas Company of London have over 20,000 customers on the coin in the slot system of gas payment. They burn an average of 210,000,000 cubic feet of gas a year, and on 1,000,000 cubic feet the company derive a profit of about \$250.

# TRADE REPORT.

# The Iron Market.

There have been very few developments during the past week to clearly indicate the further course of the mar-The outlook is still hopeless as to the chances, in the near future, for a volume of business which will stop losses and give manufacturers a reasonable profit for their work. The whole American Iron trade seems possessed of a mad desire for tonnage. There seems to have been a general acceptance of principles which are not necessarily the wisest in all cases because they are avowed as the guiding ideas in a few conspicuously successful instances.

There has been quite a general advance in rates of freight, to go into effect on October 1, and this had led to some rushing of deliveries. As yet the efforts to make the huyer pay the advance have not been highly successful, and the next few weeks may show that the fierce competition will simply force distant works to lower their mill prices.

The rush into the Tin Plate industry is attracting attention. Hardly a week passes by but what new projects are announced, and what is far more tan-gible, there is recorded the placing of contracts for Tin Plate machinery.

It may be of interest to note that Tin Plate Bars sell much closer to the ordinary Billet in England than they do in this country. We have reports of actual recent sales at £2. 15. delivered in Wales, equivalent to say \$18.25. In the Pittsburgh district they are reported to have sold at \$23 @ \$23.50, or say \$6.50 @ \$7 above the common 4 inch Billet. In England the difference is less than \$1.

Pig Iron.—There is a fair amount of business in the New York market, but low prices continue to be made by Southern furnace. The effect of the advance in freight rates has not vet been shown. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12 for No. 1; \$11 @ \$11.25 for No. 2; \$10.65 @ \$10.75 for No. 3; \$10.90 @ \$11 for No. 2 Soft, and \$11.15 @ \$11.25 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$10 @ \$10.40.

Philadelphia advices indicate that there is no unusual pressure of Iron on that msrket, although consumers recognize the fact that there are full supplies at figures recently ruling; some indeed are of opinion that they are likely to do better later on. Some very respectable sized lots of Standard Mill Irons have been taken at about \$10.50, delivered, and of No. 2 X at \$11.50 @ \$11.75, and at points such as York. Harrisburg, &c., \$10 and \$11 @ \$11.25, respectively, for similar qualities, the difference being that these points can be reached by some furnaces at about 50¢ lower rates of freight. It is believed that there cannot be any material reduction from the figures now quoted for first-class Irons, but the impression is very general that the chances for a 25¢ movement are more in that direction than toward improvement. General quotations for

Philadelphia and nearby points are about as follows:

Standard No. 1 Foundry X	\$12.50 @	\$12.75
Standard No. 2 Foundry X		
No. 2 Piain	- 10.75 @	
No. 1 Soft	11.50 @	
No. 2 Soft	10.75 🙉	11.00

Local Coke Iron has again been quite active in the Chicago market, and indi cations are much atronger of a stiffening in prices. Makers are getting such an accumulation of orders that they are more independent. They are also atrength-ened in this feeling by the fact that a considerable advance can be made without surrendering any part of their mar-ket to outside Irons. Among the orders placed during the week were several 1000-ton lots. Southern Soft Irons are in moderate demand, but no large sales have been made in this locality. Furnace companies with but locality. one or two exceptions, and those small concerns, are well sold up on this grade and hold prices very firmly. Quotations are given as follows for cash.

Lake Superior Charcoal	\$14 50 @	\$15.00
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10.00 @	10,25
Local Coke Foundry, No. 3	9.50 @	10,00
Local Scotch	10.25 @	11.00
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	····· @	
Southern Silvery, No. 2	Ø	
Southern Coke, No. 2	10.75 @	11.25
Southern Coke, No. 3	10.50 @	10,75
Southera, No. 1, Soft	10.75 @	-11.25
Southern. No. 2, Soft	10.50 @	10.75
Alabama Car Wheel	17.50 @	18,00
Jackson County Silvery	15.50 @	16.00
Other Ohio Silvery	14.25 @	14.50

While the output of BessemerIron in the Pittsburgh district is much heavier now than ever before, it is still true that there is a large consumption going on, and stocks are remarkably light. There is a probability that two or three of the Valley furnaces will soon change off from Bessemer to Mill Iron. Quotations are as followa:

No. 1 Foundry.......\$11.75 @ \$12.60, cash No. 2 Foundry.......... 10.75 @ 11.00 "

There has been less active demand for Southern Coke Iron during the week in the Cincinnati district, for the Iron Pipe works are out of the market, but the Southern furnaces, having sold liberally for forward delivery, are not urging stock on the market, and are indifferent about selling unless they obtain very full prices. The attempt of foundries there to buy No. 3 Foundry at less than \$7, f.o.b. Birmingham, has been unsuccessful, although some sales have been made at \$6.85. There have been considerable sales of No. 2 Foundry in the aggregate, but generally in small lots from 500 tons down to single carloads in this district. There is also a fair demand from the East for prompt shipment, in anticipation of an advance in rates of freight of about  $50\,\mathrm{e}$ ?? ton for rail and water, so that all the Iron the furnaces can furnish in the early future can be sold at pretty full prices. Quotations are as follows:

Southern Coke, No. 1		
Southern Coke, No. 2		
Southern Coke, No. 3	. P.10 🚳	
Ohio Soft Stone Coal, No. 1		15.50
Ohio Soft Stone Coal, No. 2		
Lake Superior Coke, Nn. 1		13.00
Lake Superior Coke, No. 2	. 11.50 @	
Hanging Rock Charcoal, No. 1.		
Hanging Rock Charcoal, No. 2.		
Tennessee Charcoal, No. 1		
Tennessee Charcoal, No. 2		
Standard Southern Car Whee		17.00
Lake Superior Car Wheet and	1	

The situation of Pig Iron in the St. Louis market remains practically urchanged so far as volume of business is concerned. Prices cannot be called weak, and yet an inquiry for a few hundred tons brings out some remarkably low figures, showlog a lack of confidence on the part of the makers for any early improvement in prices. Pipe manufacturers appear to be the heaviest consumers of Iron just now, although the local architectural works, stove foundries, etc., are all working full, and are taking their shipments very freely. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foun-		
dry\$11.0 Southern Coke, No. 2 Foun-	0 <b>Q</b>	\$11.25
Southern Coke, No. 2 Foun-		
dry 10.2	5 🐠	10.50
Southern Coke, No. 3 Foun-		
dry 9.7	5 @	10,00
		17.00

# Metal Market.

Pig Tin.—There has been a sharp reaction in prices, and the market is at present in somewhat uncertain shape. The appearances are that the unusually heavy supplies are too much for the speculative "bull" syndicate to handle and that considerable realizing has taken place. Officially no sales of large lots have been reported at less than 16.10¢ for September, 15.80¢ for October and 15 70¢ for later months. It is understood, however, that some sales were made privately at as low a price as 16¢ net cash for September delivery and that ordinary jobbing quantities went at prices remarkably close to the officisl quotations. Over 1600 tons have arrived here since the 1st inst. and it is estimated in some quarters that the arrivals for the entire month will be close to 2000 tons. Granting the most liberal estimates of consumption the actual receipts add about 500 tons to the stock in dealers' hands. At the close prices were a fraction higher, spot delivery being quoted 16 20¢ net cash, and later deliveries correspondingly up. Purchases by consumers have been very moderate. Prices for small lots were unchanged at about 174¢ b lb for Straits Pig.

Copper.—Prices have been raised a fraction higher. Aside from this little has transpired. There are few and only small buyers, since deliveries on old contracts supply consumers' wants in a Jobbers' prices for great measure. small parcels of Lake Ingot are at about the level of the past few weeksnamely, 1014 1 lb.

Sheet Cupper.-There has been a decided improvement both in the volume and character of inquiries during the past week. Large consumers are agala coming into the market for stock, and some good sized orders have been placed for Cornice Copper, as well as other Sheet Copper products. Prices for Manufactured Copper are nominally without change, but the recent advance in rates for lugot has instilled a firmer tone into the market for these materials. While the volume of sctual volume of business now passing is not very Malleable...... 15.25 @ 15.75 | large, compared with the season's average in past years, manufacturers and dealers look for a satisfactory growth in the demand and a good fall and winter trade. Sheet Copper in small lots is quoted at a 15¢ P lb net basis.

Pig Lead.-Prices have been raised a trifle, in the face of more or less adverse market conditions. Several hundred tons of common Western went early in the week at about 3.17½¢, and it seems difficult to buy large lots now at less than 3.20¢. The most plausible reason given for this change is the statement that business at late prices has been unprofitable, and that producers are inclined to hold back. There is a general uncertainty about the market which may develop into something definite before long. Meanwhile the consumptive demand is quite moderate, and prices for small lots from stock average about 3\\$\psi\$ @ 3\\$\epsi\$ \\$\\ \text{1b}\$.

Lead Pipe and Sheet .- The general demand does not expand to any notable Consumers are buying, as a rule, to supply their current needs and little more. Prices in this district are apparently well maintained in accordance with the llst.

Solder.-Prices have been again marked down. Half and half, guaranteed, is quoted by jobbing houses at  $11\frac{1}{2}\phi$  and No. 1 at  $9\frac{1}{2}\phi$  @  $10\phi$ . The demand is very fair.

Spelter. - No further change has taken place during the past week. Or-dera have been few in this market and chiefly for moderate quantities of the metal, but between purchases elsewhere and the condition of the Ore market prices remain very firm. For moderate retail quantities of ordinary Western 41¢ B it is the ruling rate. Fancy brands command the usual premium.

Sheet Zine.—Consumers' demands in this market are hardly up to the average. Prices have remained on the bssis quoted for the past few weeks—namely, 5¢ B lb for 600-lb casks, and 51¢ for smaller lots.

Antimony .- Prices have remained almost stationary at 104¢ for Cookson's, and 91¢ for Hallett's, in small parcels. Little business has been done outside of the ordinary jobbing distribution.

Nickel. Sellers' figures are about 38¢ @ 40¢ for ordinary quantities, but on attractive orders some concession would probably be made.

Tin Plates.—The spot demand for all kinds of Plates during the week has naturally been moderate and confined to the supply of absolute needs-generally in the line of Roching Plates, in view of the change in tariff and the accompanying reduction of prices which is looked for after next Monday. Inquiries for future deliveries have, however, been brisker, but dealers as a rule have not cared to contract for next month's business to any large extent until they can see the drift of the October market more clearly. Some fair forward business in light weight Cokes has been transacted, but other lines of Plates have been quiet. What the actual reduction in prices will be nest week it is difficult to say. Therefore it has been difficult to say. thought inexpedient to change the quotations on imported Plates un il some really reliable rates can be given. It will probably be safe, however, to calculate a reduction of from 75% to \$1 a box on IC 14 x 20 Tin and Terne Plates, and \$1.50 to \$2 a box on IC 20 x 28, as compared with the enrrent quotations. A good increase of business is looked for when the new duty goes into effect. Free stocks of foreign Plates in hand are reduced to a com-Omaha, Neb.....

paratively small volume, but importing honses hold a good assortment in bot d, and large shipments are said to be on their way. Stocks at Swansea are their way. unusually heavy. A very fair demand for domestic Reofing Plates is noted, and stocks of the material are said not to be excessive. A number of the larger American Tin Plate works are shut down pending the settlement of the wage scale, while several of the smaller "dipping" establishments have suspended operations indefinitely, thus reducing the output materially during the present month.

A London cable dispatch to The Iron Age dated September 26, reports as follows on the British Tin Plate market: Tin Plate has been in limited demand and the market is a shade easier. nary Bessemer Cokes have been offered at 10/ and other descriptions at corresponding prices. The demand at present is chicily for export account. Stocks at shipping ports have increased to 338,000 boxes. Swanses quotations are as follows:

	10.	20	
Bessemer Cokes, IC	10	0.00	
Sigmens Cokes, IC	10	1) ((1)	
T D Stool Cakes IC.	10	(1)	
Down Corner 20 v 28	CR 19	1175	10.3/
Churcoals IC	11	11 166	12/6

Sheet Iron .- Manufacturers' agents report mills as continuing busy on orders, several of them being perforee behind hand in deliveries. The outlook behind hand in deliveries. is considered quite favorable for a good fall business. Jobbers, however, for reasons previously stated, speak of a limited retail demand for Black Iron. Galvanized Sheeta are in very active demand, with a firmer tone to prices. We quote 75 % @ 75 and 5 % off. No. 27 Common Iron Sheets in small lots are quoted at  $2.65\phi$ .

# Chicago Report.

Scrap.-Business is better. Dealers quote the following list of buying prices, Chicago delivery: Per net ton. Per Ib

No. 1 Wrought Scrap	<b>\$7.00</b>	
Machinery Cast	6.00	
Malleable Cast	5,00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2.09	
Plow Steel and Breaking		• • • •
Alok preel and pregrue	4.00	
Stock	2.00	
No. 2, such as Shovels, Hoes,	3.00	
&c		
Old Boilers-whole (Iron)	3,00	
" (Iron)—cut in single		• • •
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3,00	
Turnings	4 00	
Horseshoes	7.00	
Copper Rottoms		51/4
Copper Bottoms Copper Clips and Heavy		7 ¢
Copper Chips and Monty		5160
Heavy Brass		3 0
Light Brass		21/10
Pipe Lead		2 0
Tea Lead		
Zinc		2 0
Rubber		31/49
	مد ابعه	Hirchi

Anthracite.—The demand is light and prices are lower. Carload lots of 12 net tons or over are quoted as follows:

	E	g, Sto.
	Grate.	
Chicago, Ill	<b>\$4</b> 75	\$5.00
Milwaukee, Wis	4 75	5.00
Kansas City, Mo	7,95	8.21
Council Bluffs, Iowa	7,95	-8.20
Lincoln, Neb	8.10	8,35
Sioux City, Iowa	7,95	5,20
Aberdeen, S. Dak	8.00	8,25
Dubuque, Iowa	6,05	6,30
Madison, Wis	6,25	6.50
St. Paul, Minn	7.25	7.50
Burlington, Iowa	6,25	6.50
Des Moines, Iowa	7.70	7.95
Davenport, Iowa	6,05	6,30
St. Joseph, Mo	7.95	8,20
Leavenworth, Kan	7.95	8.20
O -l- Mah	7.95	8.26

#### Colorado Anthracite.

COLURADO FUEL A IRUA COMPAN	A .
Denver	\$8.00
Puebto	8.00
Colorado Springs	8.00
Leadville	8.00
Cheyenne, Wyo	10.00
All points between Denver and	8.85
Missouri River	5,50

#### CONDITION OF THE

# Hardware Trade.

HILE there has been no material W change in the business situation during the past week or two, there is a perceptible though not in all lines a very marked improvement in the volume of business and in the tone of increased hopefulness and confi-dence which characterize the trade. Manufacturers and jobbing houses generally report the demand, while not up to that of 1892, as being considerably larger than last year, and it is reony larger than last year, and it is regarded as an encouraging sign that Tools, Builders Hardware and articles connected with the machinery and supply trades are moving more freely than for a long time. Travelers who are out are sending in frequent orders, which indicate, in the di-versity of goods and moderate quantities purchased, the comparatively depleted stocks of both retailers and jobbers and the closeness and care with which both classes of trade are purchasing. Our advices from retail merchants show that they are doing a better business than for some time. and are generally anticipating a fair though not heavy trade in the near future. Prices are without important change and fail to show any general improvement. In the present condition of the iron market and of general business this is not surprising. There is an evident disposition on the Inere is an evident disposition on the part of prominent jobbing houses to ent prices pretty freely, and a good many comparatively low prices are made by them. Financial conditions are satisfactory and little complaint is made in regard to collections.

are satisfactory and fittle complaint is made in regard to collections.

Advices from Chicago,—The Northwest has had the first genuine cold snap of the season the past week. It suggested the approach of winter in such a way that jobbers expect a decided increase in the demand. winter in such a way that jobbers expect a decided increase in the demand for seasonable goods. They have already begun to experience a little of the movement, which is now sure to develop. The volume of general business above a greated increase above a greated increase. ness shows no special increase over previous weeks. The trade of the first half of the month, however, has shown such an increase over August that jobbers think they are doing well now jobbers think they are doing well now if they can keep up to the pace thus set. Staple goods are moving in somewhat better quantities, but the carload trade in Wire Nails has fallen off and Barb Wire is not doing quite as well as had been anticipated. Johbers are considering what changes they will make in prices of Tin Plate, to take effect after October 1. The changes to be made will probably not be very radical. Heavy Hardware is holding its own well. The trade in this line has somewhat exceeded the expectation of jobbers and they are rather surprised to find it running along so far into the fall.

# Notes on Prices.

Wire Nails .- The Wire Nail market is in about the condition referred to in our last report. The demand is satisfactory, and the volume of business comes up to reasonable expectations. There is more or less irregularity in regard to price, and the tone of the market is not strong. The market price for earload lots at mill is 95 cents to \$1, the former figure being usually obtainable on fair lots, but beyond it manufacturers are unwilling to go. The New York price is \$1.25 to \$1.30 from store.

Advices from Chicago.—The largest manufacturers are maintaining prices firmly in the endeavor to hold the market up and not to permit general demoralization. Cuts have been made by only one or two concerns and it is expite ed that this week will witness some developments which will tend to restore a better feeling. Orders in this immediate locality have been light, but trade outside has been fair. Jobbers quote small lots from stock at \$1.15 and report a good demand from their customers, but few applications for carloads.

Cut Nails.—There continues to be a fair and pretty steady demand for Cut Nails, for the most part in lots of moderate size. Comparatively few very large orders have been placed. Active competition continues between some of the Western mills and those in the East for the business of the territory naturally belonging to the latter, and some low prices, when freights are taken into account, have been made for goods delivered on the seahoard. Small lots from store are held at \$1.05 to \$1.10.

Advices from Chicago.—This branch of business runs along from week to week with no special feature worthy of note. Orders are small but fairly numerous, and local manufacturers are satisfied with the volume of business coming in. Jobbers quote small lots from stock at \$1.10 to \$1.15.

Barb Wire:—The Barb Wire market is rather sluggish and the fall demand has not set in with much vigor. Prices are fairly well maintained, but of late there has been some evidence of a disposition to shade quotations when necessary. Four-Point Galvanized is held at about the following prices: Pittaburgh, \$2 to \$2.05; Cleveland, \$2.05 to \$2.10; Cincinnati, Allentown, Chicago and New York, \$2.15 to \$2.25.

Advices from Chicago.—Barb Wire manufacturers report that the regular fall trade has not yet started up. They expect it to come in October with a rush. Prices latterly have weakened a trille, and jobbers are quoting small lots at \$1.90 for Painted and \$2.30 for Galvanized, with the usual allowance for carload lots.

Market Wire.—The Wire market as a whole is in an unsatisfactory condition, and comparatively low prices are prevailing. There is also a good deal of diversity in the quotations made by leading manufacturers, which justify close attention on the part of buyers to the prices at which they place orders. The condition of the market is such that very diverse prices are quoted by prominent manufacturers to those who desire comparatively small quantities, while to close buyers exceedingly low net prices are named.

The Columbia Lifter.—This article is offered by A. C. Williams, Ravenna, Ohio, and is designed for use as a stove lid lifter and for removing from ovens pans of puddings, roasts, &c. A description of the device appeared in our issue, 15th linst. The Lifter is sold to the trade at \$12 per gross net for the nickeled and \$9 per gross net for the japanned.

Refrigerator Door Fastener and Lock.—An illustrated description of this device was given in our last issue. The Fastener is manufactured by P. J. Conroy & Co., Paschall P. O., Philadelphia, Pa. It is sold to the trade

from the following list, subject to a discount of 40 per cent.

	Highly	Nickel plated
Ornamental	polishe l	brass.
brass.	brass.	Perdoz.
Per doz.	Per doz.	\$15,00
No. 103\$12 00	\$14.00	11.00
" 10 k., 9,00	10,00	9.00
" 105 7.50	5,00	7,00

Sensible Mineing Knives.—A description of these Knives, which are manufactured by N. R. Streeter & Co., Groton, N. Y., New York office with W. H. Jacobus, 90 Chambers street, was given in our issue, 15th inst. The following are the list prices on the Mineing Knives, the prices being subject to a discount of 40 per cent. to the

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No.																								ten.	
10	Single	bloded																					\$	1.5	0
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40	Four	4.4																						2.5	U
	Six	4.4																						3,0	Ю
OU.	DIX.						٠	٠	*	٠	٠	٠	٠	٠	٠	٠	٠	•	•	٠	•	-			

Tire Bolts.—An advance has been made in the prices of Tire Bolts, the new discounts being as follows:

Glass. -The principal feature of the Window Glass market during the past week is the further decline in quotations from factories. This decline does not appear to be restricted to any particular locality, as it is reported that quotations have been made in New York, Pitts-burgh and Chicago of 85 and 20 per cent. discount for single and 90 per cent. discount for double strength Glass. These quotations are for large quantities of Glass, and do not apply to prices made by jabbers to retailers. There made by jobbers to retailers. appears to be a disposition on the part of jobbers to realize what profit they can on the business they are doing, rather than to decrease prices in proportion to the lower quotations of manufacturers. It is understood that jobbers as a rule anticipate lower prices when all of the factories are in operation, and are not anticipating their wants to any great extent. Demand has therefore dropped off, as there is no apparent reason to anticipate a scarcity of Giass. It is reported that 556 pots, or their equivalent, are now in operation, representing about one-third of the capacity of the country. The demand for Plate Glass continues fair with no change in prices.

Old Metals.—The market for Old Metals is quiet, except for a few grades of Scrap Iron which are in fair demand. Prices show no radical change, the following quotations representing the rates now paid by dealers in New York:

Heavy Copper	. 🐙	Ib	6!4	4
Light and Tinned Copper	. 39	Th	6	ø
Tight and Timed Copperition	30	11	11/	1
Heavy_ Brass	. 10	T.	087	J
Light Brage	. 40	w	074	y
Load	. 197	m	4/1	v
Tea Lead	18	Ð	21/3	6
Tea Dead	39	Th.	2	6
Zino	10	95	10	i
No.1 Pewter	. 44	ш	10	ç
No. 2 Pewter	. ₩	D	5	٢
Wrought Scrap Iron. # gross ton				
ton 80	90	fü	Ç0.1	U
TI Chat Maran # OTORS				

quoten as ionome.					
No. 1 White Rags	D	3	0	31/40	
No 9 White Rage	ID	1 44	w	~ 4	•
Mirrort Rage	TD.			23.4	"
Plugg and Sdg	TD.	1	(4)	1 72 4	۰
Hard Sized White Shavings W	ID.	A 72	$(O_i)$	4791	r
No. 1 White Rook Shavings W.	D)	1%	$(a_i)$	47.41	۶
No.2 White Book Shavings	Īb	1 1/8	(a)	174	¥
Light Rook Shavings	Ip			2 4	P
No. 1 Mired Shavings	-11		0	1	7
No. 2 Mixed Shavings	ľb	6	(0)	84	¢
No. 1 Printed Books	b	1	(di	134	¢

Ordinary Mixed Books         # b         % @         % depth of the property
No. 1 Juta Bagging # ID
Mixed Bagging
No. 2 Bagging
Hemp Twine 154 @ 2 ¢
Manila Rope 10 2 @ 378
Jute Rope
Mixed Rope # 15 % C 767
Old Rubber.—Dealers' purchasing
prices, New York delivery, are about
prices, fillians
as follows:
Car Springs, ton lots, # 16 @ \$0.031/2
Rubber Shoes, cartoads, de-
livered at factory, # 1b 0434
Rubber shoes, less than car-
Daus, W D
Large Hose, \$ton
White Wringer Rolls, & Ib @ .05%
White Syringes, \$1 b @ .03%

### CONTENTS.

ditorials: PAGE.	
The Level Aspect of Ventilation 53	
Laws Defining Air Supply 33	
Now Tin Plate Works	
The Interest of Steel Makers in the	
Industry	
attern Cutting Class at the Pratt In-	
stitute 53	
'he Letter Box-	
Pumbers' Examination Questions 94	
Furnace Experiences 54	
Furnace Experiences	
Wining Solder for Tin Lined Pipe, at	
Blanks for Contracts and Orders 31	
Sums Patent Gutter 54	
Poother and Cornice-	
Non - Condensing Corrugated Steel	
Roofing. Illustrated 55	
Floghings	,
Weight and Horse-Power of Rain 5	i
The Tin Shop— Flange for a Smokestack. Illustrated. 5	ì
Trades School at Elmira Reformatory . 5	7
Trades School at Finance Records The Niagara Gutter Former and Beader.	
Illustrated	8
Heating and Plumbing-New Work and	
Contracts	9
Contracte	
Steam and Hot Water-	0
The F. X W. Hot water Heater.	
Heating Notes	
Tin Plates-	
The British Press on American Tin	0
Plate	52
	33
The Florance Porceann negisters	,,,
Plumbing and Gas Flitting-	64
The Surprise tias Pennant, interface.	71
The Tobasco Automatic Siphon Taak.	64
Illustrated	65
Trans and vonus	v <b>5</b>
The Retail Store—	66
Successful Buying	66
Bolgiano's Steam Clothes Washer. III.	66
Adjustable Stove Tooth. Hustrated	67
Memorauda	67
Trade Notes	D.I
Stove Trade Notes-	
The New England Stove Trade	65
New Jewel Ranges	63
The Mt. Penn Stove Works	68
A New Trade-Mark. Hustrated	65
The Raymond & Campbell Mig. Com-	
pans,	68
Tage Defroit Heaters	6B
Cleveland Co-operative Stove Com-	
pany	69
Odd Plates	69
Trade Report-	
The Iron Market	74
Metal Market	72
And to their section of the control	73

Notes on Prices .....

Labor Exchange-

Metal and Miscellaneous Prices...... 75

Help Wanted .....

Situations Wanted ... .... ... 77

# THE METAL WORKER.

# NEW YORK AND CHICAGO.

Saturday, October 6, 1894.

DAVID WILLIAMS,

PUBLISHER

04 200 11 -- 4- 51----

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CINCINNATIRooms 22 24 Pickering Building.
ST. LOUIS Bank of Commerce Building.
CLEVELAND

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

#### American Tin Plate List.

The list of American tin plate makers and their brands, printed in The Metal Worker of July 7, having received from the trade in general many expressions of approval in respect of its usefulness, we print in this issue a complete American tin plate list, corrected to the end of last month, and propose in future publishing a table of a similar character in the first issue of each quarter. The list now presented includes all the domestic tin plate works that are actually in existence, and that are, or have been lately, in active operation. In addition to these there are, at the present time, at least half a score of works in course of erection or being planned. In regard to the particulars given as to the number of tinning sets "in operation," it should be mentioned that the returns from the works represented the situation as it was last week. Since that time many of the larger works have closed down temporarily, pending a settlement of the wage scale, and are not, therefore, for the moment exactly in the position noted in our list. A satisfactory feature of the present exhibit will be found in the fact that over twenty of the American tin plate makers are either making their own black sheets or are now preparing to do so, while others have the matter in contemplation.

#### Heating Passenger Steamers.

The heating of the large passenger steamers plying on the ocean and on our open waterways in the winter season seems to be a separate branch of business from house heating. The heating systems in the vessels built by the Government are designed by the Government engineers and erected by the workmen of the pipe fitting corps. In some of the large public shipyards the same course is pursued, while others sub-let this portion of the work to

what might be termed marine steam heating firms. Experience seems to be the best guide in apportioning the heating surface, for in several steamers of a similar character built by the same firm much difference exists in the amount of surface used in the first and last boat. In the last boat the surface exposed in the steam main running through the staterooms in some cases was found to be ample, in others a large amount of surface was required, owing to the exposure. Another feature of such work is the pitch given the piping, which owing to the motion of the boat when running is much greater than that used in buildings. It is also necessary to get the water of condensation entirely out of the pipes when the boat is not running to prevent freezing. The peculiar requirements of this work have led to its being made a specialty by a few concerns near the larger shipping ports.

# The Supply of Black Plates for Tinning.

The apprehension of a short supply of black plates west of the Alleghauy Monntains, owing to the peculiar provisions of the new tariff act, was not well founded. If such a shortage does occur, it will be at some time in the future when the capacity of the dipping plants becomes considerably larger than it is at present. Offerings of black plates have increased instead of falling off. This is not due to the closing of tin plate factories pending the readjustment of wages, since contracts are sought for deliveries extending over long periods. Foreign manufacturers of black plates are soliciting business as well as the domestic makers, so that a supply from abroad is assured if it be found that American makers cannot meet the demand or ask higher prices than consumers can afford to pay. The fact appears to be established that the Welsh manufacturers are willing to sell their product in such form as may be desired by the peculiar conditions of the American trade. If they cannot sell their product as finished tin plate they will accept the situation and sell black plates. They do not propose to lose the opportunity to sell something, if they can only get the opportunity.

## The Domestic Output

The willingness of the foreign manufacturers to take business of this character is shown by the alacrity with which they have offered consumers the full benefit of the reduction in duty. Instead of even slightly advancing their prices, under the impression that the American dippers needed to supply themselves from abroad and could stand a little squeeze, they have now gone somewhat further in the other

direction and named lower rates. This has at least been done for delivery at Western points, easily reached by local manufacturers whose output has attained such proportions that they are obliged to solicit trade. In this respect a remarkable change has but shortly taken place, the output of domestic black plates having expanded so considerably that Western dippers are almost, if not entirely, receiving their supply from the home mills. This is the case notwithstanding the great increase in the output of the tinning plants. So confident now are the Western dippers that their interests will not suffer by reason of a shortage in the supply of black plates that they are adding to their tinning facilities. Meanhile, the negotiations for a readjustment of wages in the American black plate mills are being watched with keen interest by all parties, as the sales now being made are evidently based on the lower costs which will prevail when the readjustment is effected.

# Improving Manufacturing Plants.

The latent spirit of enterprise appears to be developing in a very encouraging manner in certain lines of business. New works are being undertaken, and extensions and improvements are being made in old ones. It is noticeable, however, that this spirit of enterprise is confined to lines in which either an undoubted opportunity exists for an expansion of trade or owners of plants already built are confident that they can hold their own against any competition. Even among such concerns the impulse to progress was almost if not entirely checked by the financial troubles of the past year, but now that they have been safely passed the work of advancement can again be taken up. A great deal of capital is sure to be invested at no distant day in making improvements in workshops of all kinds in the introduction of labor saving appliances. Builders of machinery and devices of this character are receiving inquiries in constantly increasing volume from manufacturers who say that they must find a way to cheapen costs in order to retain their hold on the trade. A little further culargement in the general demand, which will show that the future really has better things in store, will cause orders for such appliances to be placed which will considerably stimulate the engineering establishments.

The export trade of the port of Savannah, Ga., for the year I893-94 shows an increase in value of \$5,230,000 over that of the previous year. The greatest increase was in cotton and phosphate

# THE LETTER $\mathbb{B}(\mathbb{I})X_{\mathbb{I}}$

#### A Tin Roof Problem.

From B. J., Indiana.-I have a large church roof to repair, the roof having been put on some two or three years ago, but the tinner who did the work got his standing seams too low, so that they leak at every rain. Can you inform me how to stop this leak with little expense! I did think of getting some roofing cement and mixing it with japan dryer thin enough to make it stick and But the filling the seams with it. trouble is, if it dries hard will it not crack and fall out, and thus let the roof lcak again?

Answer. - As our correspondent intimates, we fear that the roofing cement that he proposes to use would, when dry, crack, and thus fail to fulfill the purpose for which it was applied. We would suggest that if the seams are given two or three coats of hot tar they will be made tight. The tar is heated in an iron boiler over a wood fire and applied with brushes to the seams. The second and third coats should not be applied until the first one is completely dry. Should the black streaks of tar be objectionable the seams can be painted any color desired.

### A Hard Worked Pump.

From G. W. G., Pawling, N. Y .- I was recently called in to repair a wind mill pump and found it set as shown by the sketch I would like to ask the readers of The Metal Worker if anything was gained by setting the pump down in the well 30 feet and having the suction pipe enter the well about 4 feet below the top of the well and then run down to the pump. The pump does not work well and I would like to know what to do to get more water.

Note. - If the pump was set at the top of the well it would be above the limit that water is raised by atmospheric pressure, as the water line is shown to be 40 feet below the top of the well. A pump works on the principle of exhausting both air and water from its chamber and the atmospheric pressure on the surface of the water forces the water up into the pump to a hight of 34 feet or less. Our correspondent has evidently made an error in some of the dimensions given, for if the suction pipe entered the pump well 4 feet below the top water would have to be lifted 36 feet before it flowed down to the pump, which would not be possible. The fact that the pump does work shows that the lift is considerably less than 36 feet. The sharp turn in the suction pipe and the friction due to its length are a tax on the pump. Because of the sharp turn and the great length of the discharge pipe, 2500 feet, considerable power would be required

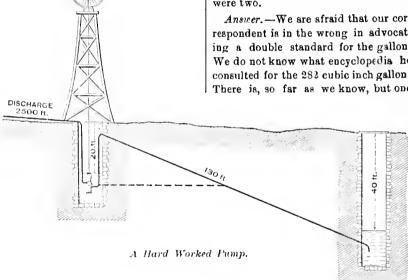
to overcome the friction and drive the water through it, sa the sketch suggests that this pipe has a slight ascent which must be overcome. The pump would be materially relieved if the suction pipe was run as shown by the dotted line, as it is probable that the pump has been set so deep, as shown, to prevent its becoming frozen. This change in the auction pipe would reduce the possibility of an accumulation of air, which can now collect at the top of the turn in the pipe and which would make an irregular discharge and a jerky action that would be very hard

ive results. If the galvanizing on pipe is not destroyed by overheating and the iron is perfectly protected by the costing, galvanized pipe will render good service.

#### Size of a Gallon.

From J. T. W., Omaha, Neb.—Please inform me through The Metal Worker if there is more than one standard gal-I see in referring to the encyclopedia that it gives ale measure 282 cubic inches and wine measure 231 cubic inches. Is milk measured by ale or winc messure, if there are two? The inspector of weights and measures was in my place the other day and I asked him what standard milk was measured by. He claimed that there was but one standard measure, and I held that there were two.

Answer. - We are afraid that our correspondent is in the wrong in advocating a double standard for the gallon. We do not know what encyclopedia he consulted for the 282 cubic inch gallon. There is, so far as we know, but one



on the pump. The discharge pipe should be several sizes larger than required by the pump and the sharp turn should be removed by the use of 45° ells. These changes will enable the pump to render better service, but if any greatly increased supply is required a more powerful pump set lower, larger pipes and a direct suction pipe without turns will be necessary.

## Copper Smoke Pipe.

From F. H. P., New Bedford, Mass Will The Metal Worker please state what is the best metal for a smoke pipe for a hot air furnace? Would copper be better than galvanized iron?

Note.-This is a question on which different opinions may be held. If the first cost is not considered copper has the advantage, though pipe that has not been galvanized can be cited that has lasted 20 years. Where pipe lasts but a short time the cause may often be traced to a sluggish draft in the chimney, and the condensation would also attack copper pipe, but not with such destruct-

standard gallon in the United States, which is the one holding 231 cubic inches. The English gallon contains 277.274 cubic inches. The gallon has been subject to many changes since it was first standardized, way back in the thirteenth century, but at present we know of no other than the 231 cubic inch gallon for this country.

### Water Lime,

From J B. D.—Plesse inform me through The Metal Worker if there is more than one kind of water lime?

Note. - By water lime we presume our correspondent refers to what are known as hydraulic limes, which slake more slowly than air lime and when in paste harden very slowly under water or in wet localities. The hydraulic limes are made from stone containing from 18 to 30 per cent. sllicate of alumina, of earbonate of magnesia or of a mixture of both. It will be seen from this that there may be many varietles of hydraulic limes.

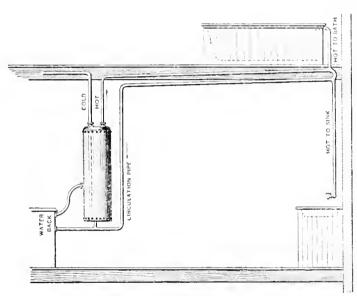
### Water Back Overtaxed.

From J. G., Red Bank, N. J .- I have a job piped with iron pipe, as shown in the sketch, in which it is impossible to get the water hotter than lukewarm. A & inch supply connects at the top of the boiler and a tube of copper runs within 6 inches of the bottom of the boiler. A 4 inch hot water pipe runs from the top of the boiler to a sink and bathroom and then is reduced to a §. inch pipe, which returns to the boiler and connects with the pipe which car-ries the cold water from the boiler to the water back. The cold water pipe to the water back runs 18 inches from the center of the boiler to an cll which turns along the range to the water back 18 inches further, when another ell is used in making the connection. The return is made by an ell at the water back, then 2 feet of pipe and a 45° ell, from which a pipe runs to the bent coupling at the side of the boiler. Both of these pipes are & inch. All of the pipes have a heavy fall and the bathroom is on the second floor, all the

it fails to heat the water. Some drawback in the way of friction and slow circulation would result from the ella in the piping to the boiler. It is probable that the result desired by our correspondent can be best obtained by doing away with the water back, using a solid fire pot in the range and running a coil of 1 inch pipe around the top of the fire pot. It should be run so that it will not obstruct the draft, yet will be subjected to the hot gases passing over it as well as being heated direct by the fire. There is nothing in the piping of the job to be criticised except that larger than a 1 inch return pipe is seldom used on so small a job, and often a a inch pipe is considered

#### Repairing Granite Ware.

From L. M., State College, Pa -Please inform me as to whether you



Water Back Overtaxed.

other fixtures being on the first. The range used is a No. 8 hot air range with an oval cast iron fire pot, which is cut out on one side for the water back. If the water cannot be made hotter the job will not be satisfactory.

Note. - Evidently a great deal of work is required of the fire, which must cook on top of the range, bake in the oven, heat the kitchen and heat a current of cold air to be used in warming another room as well'as heating the water in the boiler and the constantly cooling circulating system by means of the water back. The water back in such a range is usually exposed to the air current on one side, which has a cooling effect, and the fire chambers are not ordinarily increased to meet the extra requirements. The cast iron fire pot with the air currents outside of it absorb heat and chill the outer portion of the fire very rapidly and do not leave it in a state to have a powerful effect on the water back. It is probable that the water back is placed on the side away from which the gases are drawn, and they have very little effect upon it, and, as a consequence, know of anything for repairing granite ware. We have a great deal of this work to do, and I would like to know of some better plan than simply soldering. I would also like to know if there is any way to clean spots from Russia iron.

Answer.—In The Metal Worker of August 25, 1894, was a letter from Collins & Richards, Cincinnati, Ohio, in which they refer to an enamel cement which they make for the purpose of repairing such ware. We do not know of any way to clean Russia iron. The spots mean that the planished surface is corroded, and while it can be made smooth by rubbing it would be difficult, if not impossible, to get back the original dark polish of the metal.

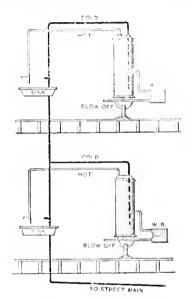
## Sims' Patent Gutter.

From SIMS MFG. COMPANY, Newark Ohio.—We notice a letter in The Metal Worker of September 29 asking for the address of the manufacturers of Sims' patent gutter. We wish to say that we own the patent and manufacture the gutter.

# Hot Water Backs Into Supply.

From W. J., Brooklyn, N. Y .- I send herewith a rough sketch of a plumbing job I am puzzled over. The boilers in two flats, one over the other, are supplied with water from the same main, which also supplies the brauches which run to the sinks. When there is a good run to the sinks. When there is a good fire in the range in the upper that and none in the lower range hot water runs from the cold water faucet on the lower floor when it opened. I have looked the job all over for the cause of the annovance without success. A new tube that runs to a point 6 inches from the bottom of the boiler was put in about three months ago. The boiler is coupled at the top correctly, there are no trups in the piping and there is an ample water supply. I will be glad to hear of a remedy soon, as it is unpleasant to wait five or six minutes for cold water to come. The boilers do not get extra hot or the water in them.

Note.—It is not an uncommon thing for hot water to back into a supply main for a considerable distance, even to the hydrant in the yard. It is possible that a separate branch from the



Hot Water Bucks Into Supply.

main in the cellar to the boiler would overcome the trouble if the heating power is not strong enough to send hot water beyond the branch. Another plan would be to put a piece of casting or fire brick between the water back and the fire, to reduce the heating power. Some risk would attend the use of a check valve if a hole was not drilled in the check, or a notch filed in it, to provide for the expansion of the water when heated. The check valve would prevent a considerable amount of heat passing, as the notch or hole need not be larger than is inch in size. The necessity of the notch or hole will be understood when it is stated that water expands about 1 gallon in 23 when heated, or about 2 gallons in a 40gallon boiler. If the check valve was tight and the boiler was full of cold water, and a fire lighted, there would be sufficient expansion when the water was heated to split the pipe, boiler or water back, whichever was weakest-and probably it would be the water

#### Boss Squaring Shear.

The accompanying illustration shows the boss squaring shear, made by the Niagara Stamping & Tool Company of Buffalo, N. Y., which was especially constructed for the manufacture of nestable stove pipe. It is distinguished from ordinary squaring shears through the combined grooving and hold down

possesses all the merits of the machines of this kind manufactured by the above firm

#### Rock Wool Sectional Covering.

The covering of heating pipes, whether for steam, hot water or hot air, has been demonstrated to effect a very substantial saving in fuel. The



Boss Squaring Shear.

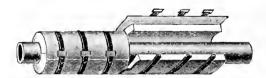
attachment in front of the cross head carrying the upper knife. The ma-chine can be used like an ordinary squaring shear, with or without hold down, or for cutting and grooving at the same time, or for grooving only. The hold down forms a clamp which holds the sheet firmly down upon the bed and thereby prevents "draw cuts." This hold down can be thrown in or cut of operation by simply depressing the treadle and then throwing the hand lever shown in the middle of cross head to the left, which will lock the hold down in position out of action. When it is desired to use the shear for cutting and grooving, or for grooving alone without cutting, a blade shown is fastened upon the shear bed in front of and the proper distance from the lower knife, and securely fastened by means of thumb screws underneath the table. An adjusting screw to the left of the clamp is then turned to adjust the hold down to the turned to adjust the hold down to the width of the groove desired, and tuc thumb acrews in front of the hold down are fastened. Next the hand levers on both sides of the hold down are raised and the whole is ready for operation, the preliminaries not requiring more than one or two minutes' time. The back gauge is adjusted for the The back gauge is adjusted in proper width of the pieces to be cut and grooved, and the sheets held against the front gauge. When a piece is cut off the same is at once grooved, so that after the pipe is formed and the 'hook' folded in a Wright's folder, the sheets can be locked together and act down with a mallet. The shear, it is said,

picture here presented shows the rock wool sectional covering made by the New York Fireproof Covering Company, 126 Liberty street, New York. It consists of a non-conducting mineral formed into blocks of more or less flexibility, mounted on canvas and secured to the pipe by thin sheet metal straps. It is made for all sizes of iron pipe from ½ to 12 inch and for hot air fur nace pipe. It is also made for covering steam boilers, hot water heaters and hot air furnaces to prevent loss of heat. It is claimed that by its use the

Burning Gas.

BY A NOVICE.

It is deemed by some who undertake the manufacture of gas burners for fuel purposes to be advantageous to heat the gas and air in an atmospherie burner before it reaches the point of ignition. The object is to avoid a reduction in the power of the flame by the introduction of a cold mixture, but there are other important points to be considered. One man claims that he would prefer that the burner should never rise in temperature above that at the time when it is lighted and has arranged as far as possible to accomplish this result. The explanation given is on this lasis: All burners are arranged to consume one part gas and several parts air. The orifice through which the gas is fed is regulated at 1 part gas to, say, 6 of air at the point of mixing. The gas being under pressure the quantity will be maintained and will drive in with it, at first lighting, the quantity of air arranged for, when there will be 1 part gas, 6 parts oxygen and 24 parts ni-trogen. If the mixture is heated all of the constituents will expand and as the gas is under pressure its quantity will be maintained, when its expansion will quantity of air from entering. A double reduction in the air supply will result from the expansion of the air, so that it is quite possible that the 6 parts oxygen, mentioned for illustration, may be reduced as low as 4 parts, or lower, when the flame changes in character and efficiency. Where the burner is used efficiency. by an experienced man and has an air regulating device, the regulator may be opened and the quantity of air properly adjusted. Should such a burner light back and it become uccessary to shut it off and relight it while it is hot, it would be necessary to reduce the air supply very low and let the gas on full before attempting to relight. Most of the burners in use do not have an air regulator and the change in the character of the flame is due to the cause just described. To prevent a radical change in the flame after the burner has become bot, the gas orfice is made to insure a proper flame when the burner is heated. This gives a very small quantity of gas in proportion to the air when the burner is cold and consequently the lighting back occurs. The remedy then applied by many, instead of being to let the gas flow a bit before trying to



Rock Wool Sectional Covering.

saving in fuel is sufficient to pay for its cost in a short time. In hot air furnace work less difficulty is said to be experienced in heating rooms on the windy side of a house or with long pipes running through a cold ceilar. In steam there is much less conder sation in the delivery, and in hot water the water reaches the radiaters at a higher temperature. The company are issuing circulars giving prices and deceriptions and an account of a test made, where pipes covered with their material condensed but one third of the steam condensed in a bare pipe of the same size.

light, is to enlarge the gas orifice, often in this way spoiling the burner.

Imports have increased to such an extent at Philadelphia that the wharves were choked up with goods last week, and the Collector of the Port was compelled to request a considerable increase to his force of customs officers.

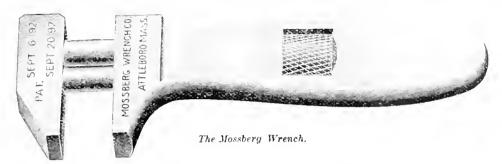
A St. Louis dispatch asserts that an English syndicate is negotiating for the purchase of all the street ear manufacturing plants in that city with a view to their consolidation.

# THE RETAIL STORE.

#### The Mossberg Wrench.

Mossberg Wrench Company, Attleboro, Mass., are offering a wrench with rapid adjustment, as here shown. The handle of the wrench is drop forged, with drawn steel rods for the shank. and one end of the swing strop is passed through the opening between the revolving slider and the cross bar. The strop is held in a horizontal position and by moving the machine forward and back over the strop the friction causes the blade to be reversed

ing the last two weeks of September the firm sold 11 stoves, half of which were with complete housekeeping outfits. The firm have a novel advertiscment in the shape of a bicycle, which is on exhibition at the post office in Spencer. It was built by Henry Fisher



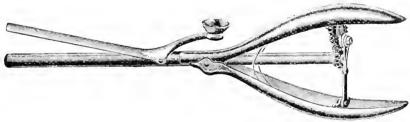
This method of construction, the manufacturers remark, insures a wrench that for strength, symmetry, durability and lightness meets all requirements. The wrench is alike on both sides, measures 4½ inches in length, opens 1½ inches and weighs 6 ounces.

# The Service Stropping Machine.

The accompanying cut represents a stropping machine for rszors, put on the market by E. Lothar Schmitz, 92 Reade street, New York. The metallic parts of the machine are nickel plated, with black enameled handle and a substantial cross bar. A nickeled metallic attachment, with brass set screws A and B is used to keep the handle and blade of the rszor in a straight line. In adjusting the attachment to the back of the shank and handle the hook of the screw A is passed through the handle and turned, then fastened in

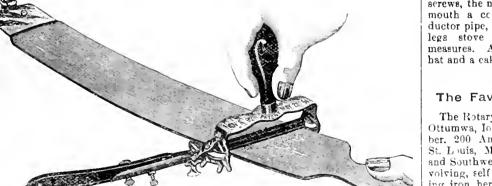
each time, automatically turning it on its back with the cutting edge pressed against the strop. It is remarked that the strokes may be short or long, quick or slow, just as desired, and that in every case the machine will work to

and Duane King expressly for use as an advertisement. The wheels are two huge grindstones, the sprocket wheels are well curb wheels and the chair is such as is used in wells. The frame is made up of a shovel, axe helve, one



The Favorite Curling Iron.

perfection, giving the blade a fine keen edge, such as never can be produced in the ordinary way of stropping. The point is made that the strop will not be spoiled, as it is quite impossible to cut double harpoon fork, two single harpoon forks, two fork handles, two neck yokes, grindstone hanger, &c. The handle bars are lead pipe and the seat is a scoop shovel. The rider lights his way by means of a lantern with a reflector. The body of the rider is a coil of rope and a butter bowl. The neck is a tin pail, the head three pie tins, the eyes are can serews, the nose a coffee pot spout, the mouth a cooky cutter, the arms cenductor pipe, the hands are weeders, the legs stove pipe and the feet gallon measures. A kettle cover is used for a hat and a cake tin for a collar.



The Service Stropping Machine.

B

place by screwing the knurled nut. After this the screw B is turned until the handle and blade arc tightened in a straight line. The screw B, when once properly adjusted to a rezor, needs no further resetting. The rezor blade is then slid in the frame holder

into the leather. The stropping ma chine is sold together with the strop.

Fisher & Sons are enterprising dealers at Spencer, N. Y., and make a specialty of the products of the Corning Stove Company, Corning, N. Y. Dur-

### The Favorite Curling Iron.

The Rotary Curling Iron Company, Ottumwa, Iowa; Heimbuecher & Webber. 200 American Central Building, St. Louia, Mo., agen's for the South and Southwest, are offering the self revolving, self adjusting reversible curling iron here shown. The curler revolves in either direction at will, adjusting its own gearing by having the clamp button turned once arcund in the direction desired. The point is made by the manufacturers that the curler does its work so easily and quickly that but one heating is necessary for curling the hair, thus saving much time and annoyance incident to the old methods; and that the curler is superior to any ever placed on the

# The Wernicke System of Hardware Shelving.

Illustrations are presented herewith of an ingenious and convenient style of hardware shelving and drawers manufactured by the Wernicke Company of Muncapoli, Minn. The inventor of this system of shelving recog-

will be seen on examining the end on the left. These horizontal sections are called crates by the manufacturers. The construction of a crate is shown in Fig. 2. The cross pieces separating the compartments are held in position by a board extending down the center of the top and two boards along the ends of the bottom. All crates being made in the same way, it will be seen

Fig. 1.-The Wernicke Hardware Shelving and Drawers.

nized the fact that hardware merchants require shelf and drawer fittings more than almost any other class of merchants owing to the character of the goods they handle. Yet it is difficult always to suit the requirements of stock or space. Shelving built rigidly in its place according to arbitrary measurements, no matter how carefully con-

that when one is placed over another the two bottom boards of the top sec tion together with the single board of the under section will make a complete bottom for a shelf or a drawer compartment, and they are so carefully fitted that they interlock and cannot easily be upset. Fig. 3 shows a crate with the compartments supplied with drawers.

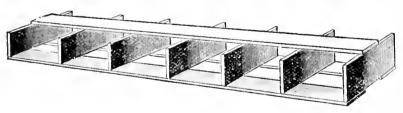


Fig. 2.—Crate.

sidered, often proves not completely adapted to the stock. Small beginners also find their enlarging trade requiring more shelf room from time to time. It is desirable to have additions harmonize with the original plan. Again, when a merchant finds it necessry to remove to another location, which will happen sometimes, the cost

Open shelving or drawers can be used as desired. The crates are interchangeable as well as the drawers, so that they do not have to be marked when taken down for removal.

The company manufacture a standard size of either oak or ash in antique finish to fill orders for immediate shipment. They take orders, however,

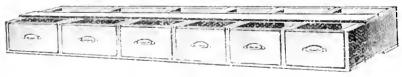


Fig. 3.—Crate Supplied With Drawers.

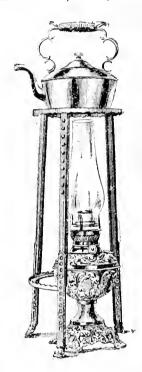
of the change is greatly reduced if the shelving can be easily taken down and refered. The shelving effered by the Wernicke Company meets these requirements. Fig. 1 shows a drawer case of their design, consisting of two vertical sections. The line of division is seen down the center. This case is built in separate horizontal sections, as

for any dimension desired and with finish and trimmings to suit individual tastes. The claim is made that first cost is less than common board shelves with plain plue boxes. No esrpenter being required to move or change the shelving a considerable item of expense is thus avoided subsequently. Although the company have not been

long in the field they have furnished quite a number of hardware stores in the Northwest with their system of shelving.

## Adjustable Lamp Frame.

W. G. Creamer & Co., 96 John street, New York, are offering an adjustable lamp frame, to allow of lamps being utilized as atoves, as shown in the accompanying cut. The frames are made of iron, painted solid colors, in red, olive and dead black, and each frame is accompanied by bolts and screw driver for putting them together. The length of the legs is adjusted at the bottom when setting up the frame, so that the top of the chimney will be about \( \frac{3}{4} \) inch below the top of the frame. The device is designed for use with any ordinary kerosene lamp, to utilize the heat for cooking purposes without interfering with the light. The frame is made in three sizes, Nos. 8, 12 and 16,



Lamp Frame Work.

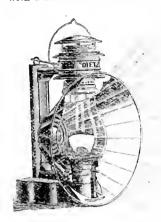
adjustable in hight from 8½ to 26 inches, with tops from 5½ to 8 inches in diameter. The No. 8 is designed especially for use in the sick room or nursery and the larger sizes for light cooking. Sad irons can be heated, it is stated, and baking of tea biscuits can be accomplished perfectly by placing a small tin oven on the top of the frame. The frames come knockdown, packed in pasteboard boxes 1 inch thick.

#### Aluminum Ware.

Silver & Co., 304-314 Hewes street, Brooklyn, N. Y., have begun the manufacture of a line of aluminum cooking and household utensils. They have ready for shipment four series of lipped rigid handle saucepans of 1, 2, 3 and 4 quarts capacity, ranging in price from \$5.50 to \$10.80 per dozen, net; two sizes of Berlin saucepans, with covers and handles; two sizes of tea kettles, holding 4½ and 6½ quarts, made entirely of aluminum, with cold handles also, an 8 inch spider of cast aluminum and cast cold handle, together with lemon reamers, &c. They will extend the line as fast as possible.

## Revolving Search Light.

The picture herewith shows the Revolving Search Light, a new lamp recently put on the market by the R. E. Dietz Company, 60 Laight street, New York. It consists of an oil tank, burner, glass globe, an upright tubular section and a revolving reflector. It is provided with a bail so that it may be carried as

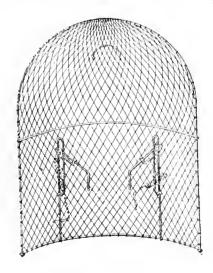


Revolving Search Light.

a lantern and arranged to be hung up in warehouses, &c., or for lighting the lawns of suburban residences. The reflector is so arranged that it may throw the full light in any direction as it moves in a circle around the globe. It is made in two sizes, Nos. 30 and 60, the smaller size being arranged for a bullseye to be attached to the burner plate. A simple device is provided for raising the globe for lighting and cleaning. It is claimed that these lamps will not blow out in a wind and that they give a powerful and brilliant light.

## Extension Fire Guard Arm.

The Cincinnati M'g. Company, Cincinnati, Ohio, are offering extension arms in connection with fire guards, as



Extension Fire Guard Arm.

shown herewith. The arms are made to raise or lower to fit the grate bars, also to be extended or thrown back to fit any grate. The point is made that thia is a desirable addition to fire guards, as grate baskets vary much in size and style. When extension arms are specified in ordering guards the company furnish them without additional coat.

### New Era Axle Sash Pulley.

The cut here shown represents an axle sash pulley put on the maket by the Empire Forge Company, Lansing-burgh, X. Y. The manufacturers remark that the axle pulley runs perfectly true, being held in position by steel stirrups, and that it has double bearings and a solid case. They state that

Paus, Fry Paus, Dripping Paus, Drinking Cups, Water Dippers, Pie Plates and Perfection Cake Paus. These are made with satin finish and present a most handsome appearance. The firm have issued a catalogue entitled "Pure Aluminum Ware," which is worthy of the fine line of goods of which it treats, It is printed in blue ink on fine paper, with illustrations in aluminum bronze, is bound in heavy paper the color of



New Era Axle Sash Pulley

the pulley has been tested to an equiva lent of 30 years' use without showing any wear. The pulleys are made in 1<sup>2</sup>/<sub>4</sub> and 2 inch sizes, with both plain and ground wheels.

# Empire Stencil Dauber.

Empire Forge Company, Lunsingburg, New York, are introducing a novelty in stereil daubers, as shown



Empire Stencil Dauber.

herewith. The brushes have solid metal handles and ferrules with black bristles. The handles are tinned, and the brushes are packed in paper boxes.

# MEMORANDA.

ARTICLES OF INCORPORATION have been filed at Omaha, Neo., by the Hibrecker Stove Company, with a capital stock of \$40,000. The concern have been organized to deal in stoves, hardware and Louse furnishing goods, succeeding John Hibrecker, Jr., whole sale dealer in stoves.

SIDNEY SHEPARD & Co., Buffalo, N. Y., and C. Siduey Shepard & Co., 23 and 25 Randolph street, Chicago, are now off-ring to the trade a line of domestic utensils of their own manufacture made of pure aluminum, The line made thus far comprises Dish Pans, Milk Pans, Sauce Pans, Preserving Kettles, Pudding Pans, Cake Pans, Muffin Pans, Corn Cake Pans, Wash Bowls, Square Bread

which suggests aluminum, and is mailed in envelopes of the same paper.

McKenny & Waterbury, 164 Congress and 108 Frankin streets, Boston, Mass., are offering the trade "a new household comfort" in the shape of the Ansonia combination lamp and stove, which can be used for either lighting or heating purposes. With the exception of the radiator or cylinder, which is made of Russia it in, all the parts are nickel plated. The flame and heat are regulated by a patent wick moving device, the same sals used on the Ausonia Mammath lamps. The oil fountain has a capacity for 4 quarts and will furnish fuel for ten hours when the device is used for heating purposes and 12 hours when used for lighting. The diameter of the Ausonia lamp is 8 mehes and the hight 27½ inches.

# The Perfection Vegetable Slicer.

The Leavitt Machine Company, Orange, Mass., are offering the trade a vegetable slicer, as here shown. It



The Perfection Vegetable Slicer.

consists of a board, in which an oblong opening is made diagonally near the cutter and concaved on one side. The knife is placed on the flut side over the opening in such a position as to make a shear cut both ways. The cutter is made of ateel, with beveled edges, and is attached to the board by means of two screws. The device is designed for alicing potatices, apples, cucumbers, and all kinds of fruit and vegetables.

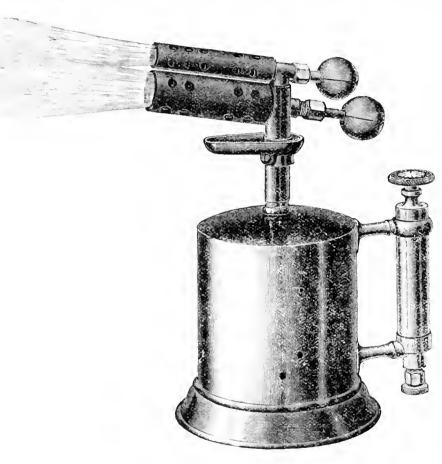
### The Duplex Hot Blast Blow Pipe.

The accompanying illustration shows the Duplex hot blast blow pipe for gasoline, just brought out by the White Mfg. Company, 40 and 42 State street, Chicago. It is fitted with two burners, one being of the standard size and the other of small size. When heavy work is to be done both burners are used. On light work the small sized burner can be used alone. This tool is intended for soldering, brazing, burning paint, thawing frozen pipes, making heavy soldered joints, &c. The generator is of double the usual strength, but can be regulated to furnish a flame of any size desired. The needle valve is fitted with a patent renewable seat, which can be replaced when worn out at a cost of only 10 cents, making the torch equal to new. The reservoir is made of one

vention of smoke, of fuels, natural and artificial, and of electrical apparatus Applications for space should be made to H. Engel, at the exhibition offices, Northeastern Bank Chambers, Sunderland

#### Thin Films of Gold.

The Journal of the Franklin Institute states that one of the interesting ex hibits made at the recent conversazione of the Royal Society, held June 13, 1894, was that of J. W. Swan, who presented a number of specimens of leaves of gold of extreme thinness, which had been prepared by the process of electro deposition. From a brief notice of the exhibit, published in London Nature, it appears that it represented an attempt by Mr. Swan to produce gold leaf by electro chemical instead of mechanical means. "The leaves



The Duplex Hot Blast Blow Pipe.

piece of specially rolled brass of heavy gauge, rendering it leak proof. The air valve is at the bottom of the pump, dispensing with outside tubes. pump is simple, but provides a very strong blast while it drains every drop of gasoline. The reservoir is tested to 30 pounds pressure.

The directors of a large Brooklyn jute bagging factory are out with a letter to their employees announcing that they will be obliged to close their mill on account of the removal of the duty from bagging, and the consequent inability of the industry to meet the competition of foreign cheap labor.

An engineering and industrial exhibition is to be opened in Sunderland, England, in November next, and is to be continued for about two months. Space is to be set apart for the exhibition of gas appliances of all kinds, of grates and stoves designed for the pre-

were prepared by depositing a thia film of gold on a highly polished and extremely thin electro-copper deposit. The copper was then dissolved by perchloride of iron, leaving the gold in a very attenuated condition. The leaves were approximately 10000000 inch thick, and some of them mounted on glass showed the transparency of gold very perfectly when a lighted lamp was looked at through them."

It will doubtless prove somewhat of a surprise to Mr. Swan to learn that ideatically the same method of procedure for the production of films of metal of extreme tenuity was described and illustrated by A. E. Outerbridge, Jr., in a lecture delivered before the Franklin Institute in 1877, an abstract of which was published in the Journal. At the stated meeting of the Institute held May 16, 1877, the then resident secretary, the late J. B. Knight, made reference in his monthly report to the thin gold fi ms produced by Mr. Outerbridge in the following terms:

Transparent Gold .- In the course of a lecture on gold, delivered before the Franklin Institute on February 27 last, A. E. Outerbridge, Jr., of the Assay Department of the mint in this city, gave an account of some experiments he had made with the view of ascertaining how thin a film of gold was necessary to produce a fine gold color. The plan adopted was as follows: From a sheet of copper rolled down to a thickness of  $\frac{5}{1600}$  inch, he cut a strip  $2\frac{1}{2}$  x 4 inches. This strip, containing 20 square inches of surface, after being carefully cleaned and burnished, was weighed on a deli-cate assay balance. Sufficient gold to produce a fine gold color was then deposited on it by means of the battery; the strip was then dried without rub-bing and re weighed and found to have gained 10 grain, thus showing that 1 grain of gold can, by this method, be made to cover 200 square inches, as compared to 75 square inches by beating. By calculation, based on the weight of a cubic inch of pure gold, the thickness of the deposited film was ascertained to be  $\frac{1}{080400}$  inch, as ngainst  $\frac{1}{367650}$  for the beaten film. An examination under the microscope showed the film to be continuous and not deposited in spots, the whole surface presenting the appear-

ance of pure gold.

Not being satisfied, however, with this proof, and desiring to examine the film by transmitted light, Mr. Outerbridge has since tried several methods for separating the film from the copper, and the following one has proved en-tirely successful. The gold plating was removed from one side of the copper strip, and by immersing small pieces in weak nitric acid for several days, the copper was entirely dissolved, leaving the films of gold, intact, floating on the surface of the liquid. These were collected on strips of glass, to which they adhered on drying, and the image of one of them is here projected on the screen, by means of the gas microscope. You will observe that it is entirely continuous, of the characteristic bright green color, and very transparent, as is shown by placing this slide of distoms behind the film. By changing the position of the instrument, and throwing the image of the film on the screen by means of reflected light, as is here done, you will see its true gold color.

Mr. Outer oridge has continued his experiments, and, by the sume processes, has succeeded in producing continued films of the producing continued films. tinuous films, which he determined to be only the 2708000 inch in thickness, or 10,584 times thinner than an ordinary sheet of printed paper, or 60 times less than a single undulation of green light. The weight of gold covering 20 square inches is, in this case,  $\frac{13}{10}$  grain; 1 grain being sufficient to cover nearly 4 square feet of copper. As you see, the film is perfectly transparent and continuous, even in thickness, and presents all the characteristics of the one shown before. That a portion of the image appears darker is due to superposed films, the intensity of the green color being proportioned to the thickness through which the light passes.

Ex-General Master Workman Powderly of the Kuights of Labor has been admitted to the bar in Pennsylvania, and will, it is said, practice law in New York City.

The German Government proposes to grant a concession for laying a new cable between Germany and the United States, the cable to be laid by 1897.

# PLUMBING and GAS FITTING.

#### Chief Wade on Sewer Gas

The following is an extract from a The following is an extract from a paper on 'Sawer Gas, and How to Detect It," prepared by Caief Rufus R. Wade of Massachusetts, and read by Colonel Henry Splaine, one of the Bay State delegates to the Factory Inspectors' Convention at Philadelphia. It became by caving that there is no longer began by saying that there is no longer any excuse for ignorance on this subject, which is one of importance to every householder. By a strange anomaly, men who work about sewers are free from malaria, and yet whole families are subject to epidemies which come from this deadly gas. It is the germs secreted therein that make it deadly. Those who are already deb'litated, as well as children and operatives in our large factories, are most vulnerable to its influence because they are restricted to the house.

If the amount of sewer gas is excessive in an apartment it will be readily detected, but it is at the same time possible for enough to flow in to be highly injurious. All connections with the injurious. sewer should be perfectly gas tight, with no openings in the connections to allow the gas to enter the apartment. There are two ways of detecting the presence of gas—the amoke test, and the oil of peppermint test, but there are instances in which these tests may act satisfactorily at one time, and yet at another not show the danger of sever gas. This is due to a defect in the drainage system, which should have regular attention by the householder after it is put in, as traps that are perfectly air tight when introduced may become loosened by use.

The defective drainage of a single tenement may set in operation causes A garbage beyond human control. heap in a backyard contains germs of an epidemic that may depopulate a town. Now, the most serious mistake which is so commonly made in this matter is to attach supreme importance to causes of public sickness that are displayed and palpable, and entirely over-look those that are hidden. A pile of filth in a public thoroughfare arrests attention, and is promptly removed. Yet it may be far less perilous to public health than the leakage of sewer gas, which, if inodorous, as it often is, does its deadly work in secret.

Observance of Plumbing Law.

The following from a Boston paper will show that there is nothing object tionable to the plumbers in that city in submitting to an examination:

"That the plumbing business is fast becoming popular, doubtless owing to tits fabled profitableness, is shown by the number of applicants for licenses. According to law, all persons wishing to engage in this business must be ex amined by a Board of Commissioners, who shall pass upon their efficiency. uno anali pass upon their emerchey.

Last year there were, on an average, six applicants a week, while now the average is 40."

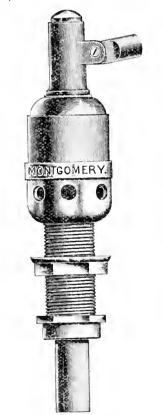
The diaposition to work according to law, shown by the increased applications, is creditable to the Boston plumb-

ers. Business men seldom depart from well established customs quickly, and the provisions of the law must have been very satisfactory to all concerned to bring such a number to promptly seek licenses.

In some places much opposition has been made to the advance in the methods of doing plumbing work, as required for good sanitary conditions. The opposition has not always come from those whose bills for plumbing work have shown an increase, but frequently from plumbers who have not frequently from plumbers who have not been progressive and kept informed on modern plumbing methods and systems. such men having been in business for years object to being examined as to their competency, but if they have no fear of passing the examination, as seems to be the case in Boston, there is no reason why they should object to what is required in the general interest of all good citizens. In several cities there are trials pending of plumbers who have ignored the law and who would have been far less inconvenienced had they done their plain duty, and which they will be compelled to do in

### The Montgomery High Pressure Ball Cock.

H. C. Montgomery, 90-92 Wood street, Cleveland, Ohio, manufactures



Montgomery High Pressure Ball Cock.— Fig. 1 .- General View of Valve.

an improved high pressure ball cock, a general view of which is shown in Fig. 1 and a sectional view in Fig. 2 of the accompanying illustrations. The par-

ticular claim made for it is absolute noiselessness in operation. When the water enters the inlet passage it flows up into the air passage and there forms

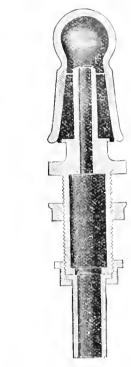


Fig. 2.—Sectional View of Valve.

a cushion for the closing of the valve. When the valve is opened the cushion is relieved and the water discharges itself in umbrella shape down its cone shaped bearings, cleaning and washing off the parts in its downward course, thus, it is pointed out, making it impossible for any substance to lodge on the valve seats.

## Vermont Master Plumbers.

The Vermont Master Plumbers' Association which was organized in Rutland, April 11 last, held its semi-annual meeting at the Van Ness House, Burlington, September 24 About 25 were present, a number of Burlington plumbers joining the association. The objeets of the association are stated to be the enactment of a smitary law by the Legislature to create more efficiency in boards of health, to improve the class of work done by plumbers and for social intercourse. Remarks were made by John Mitchell, president, and W. Emmet Crosby, executive clerk of the National Association of Master Plumbers.

The following officers were elected:
President, G. H. Holden of B trlington;
secretary, J. P. Bagley of White River
Junction; treasurer, A. B. Kingsland of Burlington. The president appointed E. A. Valiquette of Rutland, E. F. Wardwell of Woodstock and W. P. Jones of Rutland the Executive Committee. Plumbers were present from Montpelier, Woodstock, Rutland, White River Junction, West Randolph and other places in the State, and considering the distance to be traveled, the convention was well attended. The membership has doubled since the last meeting and the outlook is good for an equal increase at the next convention. The next convention will be held in some city where there is no association, with the intention of forming one.

#### Plumbers' Banquet at Salem, Mass.

Gathered about the tables at the Essex Ilbuse Thursday evening of last week were 35 representatives of one of the most important trades in Salem, Mass., the plumbers'. They were the members of the Master Plumbers' Association, which embraces the leading plumbers of Salem, Peabody, Beverly and Danvers, together with invited guests.

Among the latter were John Chambers, the local Inspector of Plumbing; Clerk Raymond L. Newcomb of the Board of Health; O. S. Kendall, presi-dent of the Worcester Association; Henry A. Despar of Worcester, who framed the State plumbing law; J. W. Green and J. W. Jordan of Worcester.

Others about the tables were as follows: Robert Robertson, F. A. Wendell, lows: Robert Robertson, P. A. Wenden, E. G. Kelly, Joseph A. Andrews, James W. Trow, George Norton, R. A. Ravel, T. J. McDonald, D. T. Veaton, J. F. Cabeen, F. H. Caskin, A. M. Stevens, Edward Tyler, Daniel Ingersoll, P. H. Sweeney, Wm. Webber, Carter Herrick, Chas A. Pnippen, Joseph Robertson, C. F. Driacoll, Chas. Pickett, H. W. Chas A Pnippen, Joseph Robertson, C. F. Driscoll, Chas Pickett, H. W. Cawley, Wm Hart, James A. Corman. This association was formed last

March and monthly meetings have been held at the master builders' head quarters every month. The efficers are as follows: Robert Robertson of Beverly, president; Frank A. Wendell, first vice president; E. G. Kelley of Peabody, second vice president; Jos. A. Andrews, treasurer; James Trow, secretary.

The first business of the evening was the discussion of an excellent spread, served in Landlord Davis' best style. The menus were gotten up in a reminiacent and humorous sort of a way, plumbers' titles, such as "baked pig" and "soldering solution," being applied to many of the courses, the whole being headed, "The plumbers' long bill" bill.

A series of remarks then followed, interspersed with songs by Robert and Joseph Robertson, James Trow, James A. Corman and Joseph A. Andrews, President Robertson introducing the speakers and vocalists. One of the first to be called upon for remarks was Plumbing Inspector John Chambers, who stated he would earnestly co-oper-ate with the plumbers to elevate the sanitary condition of the city, and who advocated a house to house inspection. He was followed by Vice President F. Wendell, the originator of the local plumbing ordinance, who spoke as fol-

Mr. Chairman and Gentlemen: I am pleased to meet you all on this occasion, the first social meeting of our association, and to find that the plumbing profession has taken the lead in our city toward throwing aside petty jealousies and bringing us together in a friendly onamer to talk over the latest ideas in sanitary plumbing. As I understand it, one of the objects of this meeting is to talk over the plumbing ordinance, and see if anything can be done to lessen the work and still make it as well. Now, I only voice the sentiments of all the members of our association in saying that all are in favor of doing so if it can be done without making imperfect work. The first question is, "Why are we obliged to have a plumbing ordinance?" and the answer is

that io the past few years contract work has made bidders overanxious to get the contracts, and the result has been inferior workmanship to such an extent that a law was passed by the State requiring every city to adopt an ordinance. To day no person can apply that to the harmonic property of the state of the particular to the state of the s was passed by the State requiring every city to adopt an ordinance. To day no person can undertake to do plumbing without being examined practically. One year ago work could be thrown together, if one wished to, with mortar, cement or putty, but to day it must stand a test in the presence of an inspector. It costs more to do the work at the present time, but is it not much better to pay more for a job and know that when completed it is safe and sound? I do not believe that all cases of sickness, such as malarial fevers, are caused by defective plumbing, but a large percentage of sickness can be traced directly to that source. A good illustration which bears out this assertion may be seen by the chart which langs in the Board of Health office showing the city of Salem. Clustered here and there in the different wards are pins representing cases of typhoid and diphtheria, and in nine cases out of ten they are situated near the outlet of one of the sewers or where no trapping has been done. Now, I believe we have a good ordinance but situated near the outlet of one of the sewers or where no trapping has been done. Now, I believe we have a good ordinance, but which could be modified in some respects and so amended that the inspector should have the authority (in the case of old work) to allow certain work to be done when it will be cheaper and better for the

said trap to be approved by the Inspector of Buildings.

Others were called upon for remarks, and a general discussion was continued until a late hour, many interesting points being brought up and explained by those best posted, for the benefit of the others.

#### Water Closet Pull.

The accompanying cuts show a new water closet pull which James Temple, 1016 Columbia avenue, Philadelphia, is putting on the market. The pull is introduced as an improvement on the chain pull in common use, being more durable and less liable to get out of order through misuse or otherwise. may be set in brick or stone, or in tile or plaster partitions. When required for new work the case or body A, Fig. 1, can be put in the wall at the time the roughing in work is done. When the pull is used in a plaster partition the chain should be passed through the opening B; but when used in a brick, stone or tile partition it is better to run



Fig. 1.-Broken View of Temple's Patent Waler Closel Pull.



Fig. 2.—The Pull in Service.

owner. For an example, that when a sink and set wash trays are to be placed together it should be left optional with the owner

owner. For an example, that when a sink and set wash trays are to be placed together it should be left optional with the owner whether he use one trap or two. It looks to me unnecessary to use more than one, while others may think differently.

I was called upon to put in a set of wash trays which were to be placed next to a sink which had a 2-inch iron waste pipe, but I was not allowed to enter it without carrying a pipe through the roof, according to the ordinance. I had to extend it some 25 feet to enter the main soil pipe, but I believe it would have made a better job to have entered the 2-inch waste near by. Such things ought to be left optional with the Plumbing Inspector, to my way of thinking. I also believe that if a person wishes to put on a trap under his sink it should be allowed, even if not ventilated, as it would help make the work more thorough, said trap to be approved by inspector. The Plumbing Association has come to stay, and will be a help to Salem in a sanitary way in years to come. Before closing, I would say that all members cannot but highly appreciate our Inspector of Plumbing, who, through his impartiality and thorough knowledge of the business, has won the esteem of all, I will close my remarks, and thanking you for calling, on me, would suggest the following amendment to the plumbing ordinance:

"That when set trays and slak are to be placed together, owner may use only one trap when waste pipes are independently connected Into trap and trap ventilated,

the chain through the opening C, so as to avoid the necessity for cutting into the wall the full depth of the pull casing all the way up. A slotted upper plate receives the tank lever when set at a proper angle, and in adjusting same it is necessary that the slot should be in line with the slot in plate E. When the lever cannot be set at an angle a small angle iron bar may be attached so as to make connections and fi. into the slot in the plate. The openings B and C are suited to ½-inch irou pipe, the pipe being used to incess the chain and being carried up as far as the bottom of the upper plate. In setting the pull easing in rough work the plate E should be removed. When the job is finished the bar D may be adjusted and the plate screwed on In setting the pull allowance should be made for the In setting the tile or wainscoting sufficient to allow of the setting of the back of plate E flush with the finish. The pull is made of iron neatly finished with nickeled plates and knob.

BUFFALO, N. Y., has just contracted for a large addition to the city sewerage aystem.

### TRAPS AND VENTS.

At the shiftend of Wm. Cramp & Sons, Philadelphis, a force of about 400 men are employed in the plumbing and pipe fitting department doing the work on the ships in course of construction. A very complete system of plumbing and heating will be installed in the new passenger steamers now building at their yard. The sanitary provisions not being governed by any city ordinances in such vessels, the whole plant is arranged by their engineering corps before their skilled plumbers and sleam fitters start in the work of erection.

The City of East Liverpool, Ohio, us a natural gas for fuel almost exclusively in residences and in the kilos for firing ware. The gas companies have issued orders that after November 1 all residences must use and burn gas for heating through meters. This is making considerable work for plumbers and gas fitters, and also for laborers in digging trenches.

IN ADDITION to having done the p'umbing and steam heating in the four palatial steamers of the Fall R ver l. ne, Il. C. & F B. Calkins, 177 Christopher street, New York, did the work in the United States naval vessels "Boston," "Chicago," "Atlanta" and "Marblehead."

Indianapolis Plumbing Company is the name of a new corporation at Indianapolis, Ind., with a cari al stock of \$1500. Directors: W. F. Koppper, Susie Dewald and M. Dewald, Jr.

A MOVEMENT is being made to form a master plumbers' association in Cumden, N. J. Geo. Leathwhite, Geo. Hammond, Wm. Calhoun, Wm. Longheed and Plumbing Inspector Francis are doing the preliminary work among the 34 plumbers in the city. Camden is the only city in the State where the plumbers are examined, and the plumbing laws of the city are said to be the best in the State.

GEORGE W. KROWL, agent, plumber and ste-m fitter, has removed his place of business to the store at 325 Carroll street, E mirs, N. Y.

A COMPLAINT is made at Newton, Mass, by the plumbers that the office of Plumbing Inspector has not been regularly filled.

THE tinning and plumbing establishment of Spicer Brothers, Bridgeport, Conn., has dissolved. The business in the future will be conducted by the senior partner, Joseph N. Spicer.

- T. J. Moran, son of William Moran, the well-known plumber of Titusville, Pa., has purchased the plumbing establishment of M. Albrecht in Olean, N. Y. Tommy starts in husiness under very favorable auspices. He is a good plumber, having had seven years' experience with his father, hesides holding a certificate from the New York Trade School for competency in the art of plumbing.
- J. W. FAUST has gone into the plumbing and gas fitting business, at Crawfordsville, Ind. D. Pickett is his foreman.

THE DAY MFO. COMPANY of Detroit, Mich., will remove their bathtub factory to Milford, the village having voted a bonus of \$5000.

"The Evolutionary Developments of Domestic Pumbing During the Past 30 Years" was the title of a paper read before the American Public Health As-

sociation during its session at Montreal last week by J. W. Hughes of Montreal, who concluded by pointing out the necessity of good plumbing, and showed that the cheap st work man was not always the best.

WILLIAM POMEROY, 926 Madison street, Brooklyn, N. Y., has applied for a patent and is about to put on the market a new pipe coupling. It is designed for making a joint in lead pipe without the use of solder.

Thomas Brabson has moved to more convenient quarters at Bridge and Plymouth streets, Brooklyn, N. Y., where, in addition to his brass finishing shop, he has a brass foundry. Mr. Brabson is making a number of plumbers' specialties in valves, cocks and governors.

WALTER HANNUM and Henry Trim mel have charge of installing the plumbing system in the new school at Monticello, for which their employers, Carson & Co. of Danville, Ill, have the contract.

J. A. Berg, a plumber of Chicago, has opened a shop at 217 Madison street, O.tawa, Ill.

WM. A. FAUST, who has spent several years past in Milwaukee, Wis., where he was in the employ of one of the principal plumbers of that city, has startel in business for himself at 3 Cron street, Pittston, Ps.

J. H. MACHETH of Mankato and A. P. Schul z of St. James, Minn., have united their capital and skill and will run a plumbing shop at St. James.

THE VINCENNES SEWER PIPE WORKS, at VINCENLES, Ind., were burned on the 29th ult.. entailing a loss of about \$40,000, half covered by insurance. The plant was an important one, employing 140 men.

John F. Hughes has gone into the plumbing and steam fitting business, at 712 Main street, Little Rock, Ark.

LINDLEY & MEREDITH, the new plumbing firm, at Bennington, Vt., have received the most of their stock and tools, and are rushed with business

Again has the speedy Cunarder "Lucania" broken the Atlantic record. On her westbound trip, last week, she accomplished the trip from Queenstewn to Sandy Hook in 5 days 7 hours and 48 minutes, heating the recordher own-by 50 minutes. The "Lu cania" now holds all transatlantic records; namely, for the fastest trip east and west, the greatest single day's run, the greatest average daily runs and the greatest hourly average. The approach of the stormy term will probably put a stop to any further record breaking achievements for this season. Meanwhile the present year has seen the time of passage reduced by about five and one-half hours.

Last week's West Indian cyclone is reported to have done considerable damage to the cotton and rice crops in the middle and coast regions of the South. The Florida orange crop is also stated to have suffered severely from the storm. Happily, unlike the cyclone of a year ago, but little loss of life is recorded.

In order to prevent a recurrence of the floods which devastated British Columbia last summer the Canadian Government have begun a survey of the banks of the Fraser River with the view of devising a system of dykes.

### FLASHINGS.

WE ARE IN RECEIPT of a very nest card of invitation from Gara, McG'nley & Co., to inspect their burding at 28 South Seventeenth street, Philadelphia, on O tober 16 1894 Another form of the same invitation comes in all the mandatory semblance of a subjecta, which recites how the recitiont is commenical, under the power of this subpara, which is issued by the Supreme Court of Rooting, to lay saide all other business and ergagements and be present October 16 st 23 Sauch Seventeenth street, the new quarters of the wellknown firm of roof repairers Gara, McGinley & Co., and the further text of the sub; ceas relates to the necessity of leaving orders for overhauling roofs, gutters, spouts, &c., under penalty of suffering damage from fall and winter atorms.

THE NEW YORK METAL LATH WORKS. 110-114 Navy street, Brooklyn, N. Y., are now constructing partitions made of angle, channel and T-iron, to which is attached their York metal lath. work is plastered on both sldes of the partition, making practically a solid slab of iron and plaster. The company have recently set up at their works several different kinds of partitions, some on wood and some on iron, to which they have invited the attention of architects, builders and others interested. The company also construct what they call "solid partitions," specially adapted for air and light shafts, dumb waiter and elevator shafts in flats and other buildings where floor space is valuable and economy and fire protection necessary.

ARTICLES OF INCORPORATION have been filed for the establishment of the Crittenden Roof & Mfg. Company of Minneapolis, Minn. They propose to manufacture sheet metal work and all kinds of roofing, and have an authorized capital stock of \$10,000. The incorporators are Mason H Crittenden, Frank V. Emery and C. S. Talbot.

The Manhattan Cornice & Rodfino Works, Flist avenue and Sixtyfirst street, New York, have recently secured the contracts for the sheet metal work in connection with the new buildings at 71 Fourth avenue and at 256 West Twenty-third street. The company have completed the contracts for roofing, cornice and skylight work on flats in Ninety-second street near Third avenue; also on two flats in Ninety-eighth street near Columbus avenue, belonging to David Richey, and on the factory and dwelling on East Seventy-first street built by Murphy Brothers.

A LARGE ADVERTISING SHEET is published by the St. Paul Ro ting, Cornice & Ornament Company, St. Paul, Minn., which will be of interest to the trade, as it shows many patterns of cornices and window caps. The assortment includes main cornices and lined cornices, and incidental reference is made to finials, skylights, steel ceilings and other goods of this kind. In addition to the engravings dimensions and prices are given.

The grand jury of the Criminal Court of the District of Columbia have returned indictments against the president and secretary of the Sugar Trust as a consequence of the refusal of those officials to answer questions put to them by the Senate Investigating Committee in June last.

# TIN PLATES.

Philadelphia Tin Plate Trade.

The tin plate trade is in a very confused condition owing to the changes in duty. It is, however, the intention of those who have embarked in the manufacture of tin plates in Philadelphia and vicinity to hold on to the trade which they have built up. Quality has been a special feature with several of the leading manufacturers in this market, and they are now respirg the benefit of their foresight in a continuous demand specifying certain brands which, after severe trial, have proved equal, if not superior, to imported brands.

The demand for the American continuous rooting tin is, we are advised, Increasing rapidly and the proprietors of the patents are putting in new machinery, which, in the course of two or three weeks, will double the present output and enable them to make wid has of 14 inch to 20 inch and 28 inch.

### Weish and American Wages.

In an interview published in the St. Louis Globe Democrat, Thomas Neid ringhaus of the St. Louis Stamping Company makes a detailed statement in regard to the causes which have compelled the company to announce a reduction in the wages of their tin mill employees, under the operation of the new tariff law. As the situation of the St. Louis Stamping Company is similar to that of the other tin plate manufacturing concerns now shut down pending the adjustment of the wage question, the figures given by Mr. Neidringhaus will be read with interest. He remarks as follows: "Under the McKinley bill the duty on tin plate was 2.2 cents per pound, affording us a protection estimated at 75 per cent. Since the Wilson bill became a law the duty is placed at 1.2 cents per pound, affording protection of only 35 per cent. In order to meet the disadvantages our business will suffer on this account we were compelled to make a reduction in the wages of the rellers, catchers, doublers and heaters, who number about 200 men. There are 600 men employed in the works, but of this number only the 200 mentioned will be affected by the new wage schedule. Under the new \* égime—that is, the Wilson bill—the foilowing wages will be paid: Rollers and catchers, \$3.71 per ton, netting \$8.35 per day of eight hours; dcublers, \$2.02 per ton, netting \$4 50 per day of eight hours, and heaters, \$1 86 per ton, netting \$4.15 per day of eight hours.

Statistics show that in England rollers and catchers receive \$3.76 per day, doublers \$2.23 and heaters \$2.10. Under the M. Kinley bill we paid our men 150 per cent. more than the work men in the Welsh tin plate works received, and even now, notwithstanding the passage of the Wilson bill, which affects cur business so seriously, they are receiving 100 per cent. above the wages of the Welsh laborer. The reduction mentioned applies to the making of black plate only. Just what action will be taken by our men it is not for me to say. We explained every de-

tall and showed just why it was that we were forced to eller them less wages."

### Tin Plate Wages.

No agreement having been reached between the tin plate and black sheet mills and their employees over the question of a reduction averaging 25 per cent. in wages, to go into effect on October 1, a general shut down has ce-curred. Advices received at the headquarters of the Tin Plate Manufacturers' Association of the United States, in Pittsburgh, are to the effect that the shut down is general, only two or three plants being in operation, and these are expected to close as soon as present contracts have been filled. Among the last concerns to close down was the United S ates Iron & Tin Plate Mfg. Company, Demmler, Pa., who closed their plant for an indefinite period on Saturday of last week. At present the outlook for a settlement of the wage difficulty is unfavorable, the manufacturers claim ing that it is impossible for them to continue paying wages on the old basis and compete with foreign product under the new tariff. A meeting of the above organization was held in Pittsburgh last week, but only routine business was transacted. The present wage dispute was not under consideration, as the manufacturers have not receded from the original position taken by them when the change in the tariff was made.

### SCRAP.

THE FIRM of James B. Scott & Co., tin plate manufacturers, of Pittsburgh, Pa., who made an assignment in February last, having been reorgan zed, were succeeded on September 27 by a new corporation under the name of Follansbee Brothers Company.

Some very heated correspondence has been appearing of late in the English press on the subject of the prospects for Welsh tin plates in the United States market. Although some of the disputants exhibit, or assume, an extraordinary ignorance of the conditions of the American tin plate manufacturing in-dustry, the balance of opinion seems to lean to the conclusion that home competition in America is an entity which has to be reckoned with, and that the tin plate plants established in the United States are genuine concerns, the product of which is already seriously threstening to oust the Welsh article from the market. A correspondent of the Cardiff Western Mail, who states that he is part proprletor of a We'sh tin plate works, writes to say that he can no longer blind himself to the fact that the American trade is slipping away. He mentions in confirmation of his statement that one of the largest importers of tin plate in the United States had said to him lately: "We feel the effects of the American competition in every town of importance in the United States." Bitterly does he add: "I suppose that when the trade has left us, and gone to America, we shall then

begin to reduce the cost of production, and that the workmen's union will, by that time, have seen the propriety of doing something to keep the trade—when it is lost!"

PHILLIPS TIN PLATE COMPANY, Philadelphis, advise us that they are running five tinning sets on full time.

THE TIN PLATE PLANT of Wallece, Banfield & Co., Limited., Irondale, Ohio, was shut down on October 1, and will remain closed until the adjustment of the wage scale.

THE TIN MILLS of the Falcon Tin Plate & Sheet Company, Niles, Ohio, are shut down pending the settlement of the wage scale.

THE BLACK PLATE MILL and tinning department of the St. Louis Stamping Company, St. Louis, Mo., are closed down until the wage question is settled.

THE DEATH is announced in England of David Davies, proprietor of the Beaufort Tin Plate Works, Morriston, near Swansea, and one of the best known tin plate manufacturers of Wales. Mr. Davies was a notable instance of success attendant on industry. The London Engineer thus sketches his life: "He began life as a farm laborer, and next filled a humble position at the Penydarran Works as a roll cutter. One of the specialties of Penydarran was the nail rod, but at one of the Staffordshire iron works a burnished one was turned out which was of a superior kind, and David Davies, on his own inspiration, traveled thither and worked in a humble capacity at the works until he learned the process, and, returning, he introduced this and made a fortune. He lived to acquire the ownership of the Penydarran estate, sold this, acquired the College Works, Llandeff, which he aga'n sold, and finally bought the Beru-fort Works, near Swansea, and was more successful than the generality in avoiding labor difficulties."

HENDERSON TIN PLATE COMPANY, Norristown, Pa., inform us that the tinning machine in operation at their works is of the Thomas & White pattern and not a Morewood michine, as stated in a "Scrap" note in our issue of Seplember 22.

MERCHANT & Co, Inc., issue, under date of Oct. 1, from their Chicago office, a list of quotations on tip, terne plates, metals, &c. These include the American roofing plate, Tandem continuous roofing tin, besides a full assortment of foreign plates. A'so sheet metals and their Spanish tile and Star ventilator.

HENRY W. SCATTERGOOD, proprietor of the Black Diamond Tin Plate Works, Phlladelphia, sends out blotters calling attention to the "best mottled roofing plate in the market," which is the way he describes the Black Diamond. The blotters are backed with enameled paper, making them very serviceable for desk use.

THE tin plate works of Marshall Bros. & Co., 1156 Beach street, Phlladelphia, are running with four sets on double turn. OCTORER 6, 1891.

# List of American Manufacturers of Tin and Terne Plates and Their Brands,

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			for the	4	<u> </u>						for their				101				
	Remarks.		Continuous roofing.  Make bright plates for their own use only.	pended. plates for their	ž	erreled.			1						dirth >				
	Ren		Continuons ro lake bright j own use only.			Operation suspended,									Make Bright power only, Operation was part				
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		Terne plates.	Puritan. Barto, Marion, Pencoyd, Saratoga			ohawk guesne, Kenton, Lionel,	err, Ornt, Trisuarga, anymona, scatts therword, Taurso, Triumph. Optimus. Chimax, Confinental, Earle, Flar.	cubes, Leonmister, Extra Conted, Liberty, Pherma, Pennsyl om Method, Ponner, Venns, X. E. C. R Bonns, J. A. R. Hamilton's Rest Redipped, Hazlewood, Kilbanek, Lalia, Mirgo Old Process, Oakham, Osecola	on Rooting, Union, Victory.	m's Apollo, Tip top.	eseent. Empire, Hand Control, Hickory.	Merchant's Old Method, Merchant's Rooting, Palm, Special Extra Conted. Exector, Physhaw Gree, Menrer Rooting, Menrer Old	R. H. J. Philip Philip Coke, New Corticott New Costle Children in New Costle Coke, New	Norristown, Eurnest, Norristown Extra, Norristown Redmond.	Belaware, H. & P. Best Koofing, H. & P. Redipped Koofing, Horen, Oneofin	that Edward Collifying Stateon, Frantisty New Yarbook, Lotter's Recording Boskow, educator's Fibert, National, Philips' Roothus, Lectuable, Widels's Roothus, Zero	susington, Westmoreland amond, Horse shoe, Laurel, Quake	s L.S. ond. Proceed Golder, Microsty, M. Polling Tite, Wildow usea's Protein	Strung L. S. Monouganoug, I. S., Bo
branda.			Belmont. Hancock, Keystone. * Linfield, * Tandem, Apollo liest Rooting.	Dawn	Extra Erie,	Piqua, Piqua Hand Dipped.  Iron City, Sobo. First New York, Juanita, M. Mighleybery, Braddock, D. N. Vichel, D. M. Vichel, D. W.	Extra Corted, S. Glenwood, N. F. Alderly, Anchor.	Cules, Leomins Pennsyl On Me Bonus, v. A. R., Killbuck, Lulu	Old Style. Champhon, Fidelity, Henders Crane. New Process Routine	Laufman's Apol Allegheny, Free Penn Treaty thu	Alaska, Arch, Cr.		Method, Pulling F. W. B., H. C. B. New Carlo old M	Norristown, Em Redinated.	Delaware, H. & Reoting, Horon	Method, Liotre Method, Liotre Boston, Columbia Republic, Wald	Amber, June, Kensington, West	City, No Brand Acine, Alta, Extra Columbia, Geniu, Out Metford, Sp. Central, Oid Columbia, Oid Colum	dipped.
Names of brands	Bright tin plates.	Coke.	Ætna	Flag	(z)		Petunia	Pansy	Hero	Penn Treaty	Leslie	Brooklyn, Capitel	C.B. J Coke New Custle Palm Coke	Norristown.		Gladys, Walnut	Record Coke.  B  D Coke.	red Coke Umond, Locust Mint.	Irondale \( \sum_{\circ} \)
		Charcoul.			Elgin, Brie	No. No. No. Clifton	No. Climrose Colonial, Mars, Neptune, Phoenix, Stat, Sun, Victor.		Cranc.		Florence, Mioerva, Palma, Pisa.	:	New Custle Best Palm, New Castle New Palm New Castle Dinescon New Castle Character Castle Castle Character Castle Character Castle Character Castle Character Castle Character Castle Castle Castle Castle Character Castle Character Castle Castle Character Castle Castle Character Character Castle Character Castle Character Castle Character Castle Character Chara	Castle S. Churconl	Yes., Cherokee, H. & P. Best Bright, Mo- hawk, Semnole	Century, Oak	* No. Record A. Record Al. No. Arrow. Illack Dumond, Horse Shoc, Imperial, Peerless	Somerton.  Bons and Dipped T. S. Youghlogheny.	Yes . I rondule AAR AAA \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
lor 1 April	61000 Q #1000	ds ds	Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z			NXX NO	NZ 00.	No	No.	Yes Yes Yes P			Kes. N	No E	Yes Yes		- NN 00 +	Y Co	Yes . 1
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	Location of works.		idgeport, Obio iladelphia, Pa ilidelphia, Pa inideit, Pa ooklyn, N. Y ttimore Md	Blairsville, Pa. 5 Canonsburg, Pa. 2 Chicago, Ili	:	Piqua, Ohio	Pittsburgh, Pa 4 Philadelphia, Pa 4	Piftsburgh, Pa 3	Norristown, Pa 1 Middletown, Ind 8 New York, N. Y 2	Apollo, Pa 1 Butler Junetlon, Pa. 4 Philadelpha, Pa B Bullimore, Nd		Brooklyn, N. Y.	Gas City, Ind 8 New Castle, Pu 12	Pa	Chicago, EE		New Kensington, Pa 5 Conneaut, Ohio. 2 Philadelphia, Pa 4	Cincineati, Obio 2 Brooklyn, N. Y. 3 St. Lonis, Mo	Irondale, Ohio 10
	Name of manufacturer.		Anna-Standard Iron & Steel Co	Rightswife Rolling Mill & Tin Plate Co [1] Canoosburg Iron & Steel Co		Cincinnati Corrugating Co.  Cloveland Tin Plate (*).  Bast River Lead Co.  Follansbee Bros. Co.	Griffiths & Cadwallader.	Hamilton, John	Henderson Tin Plate Co Irondule Steel & Iron Co Jagnes, (1eo. W	Limited	rated	Meurer Bros. Co B	Morewood Co New Custle Steel & Tin Plate Co	:	Norton Bros		Pittshurgh Tin Pate Works	Simpson (Wm, T.) & Co. Somerton Ton Plate Works. St. Louis stamping Co. Fayror (A, & G.) Co. Thomson (A, A.) & Co. United States Iron & Tin Plate Mg, Co. Demmler, Pa.	Walnce, Hanfleld & Co., Ltd

<sup>\*</sup> Preparing to make back plates.

A CABLE DISPATCH from Swansca, Wales, states that a novement is on foot there with the olject of erippling the tin plate industry in the United It being contended that the Americans cannot produce certain plates without Welsh labor, the representatives of labor in Wales, it is said, are inviting the return to that country of all tin plate workmen in America who have been discharged from their positions, or whose wages bave been reduced as a consequence of the adop tion of the new tariff. As a consider able propertion of the tin plates still in Wales are said to be without em ployment and rumors are rife of a con templated reduction of wages for this class of labor in that country also, it is difficult to understand what solid inducements to return can be held out to Welsh tin p'ate workmen bere, even if they are suffering from a present or prospective reduction in wages. The contention that certain plates cannot be made in the United States without Welsh help is one that would not be easy to substantiate. We have reason to believe that American workmen are even now turning out all classes of tin and terne plates known to the trade, and turning them out of a quality that compares to advantage with any impor ed material. There are large tin plate works in the United States where the labor is entirely American.

THE ROLLING MILL AND TIN PLATE-DEPARTMENTS of the St. Louis Stamping Company, St. Louis, Mo., have temporarily closed down. The employees were informed on Monday that a reduction in wages would have to be arranged in order to meet the new tariff conditions before the works can be again put in operation. The company's stamping works and the other departments of the large establishment continue in operation. Advantage will be taken of the shut down of the rolling mill and tin plate departments to make repairs and alterations and erect new machinery.

Among the tin plate works which have been closed down this week in consequence of the wage scale controversy is that of the Bultimore Iron, Steel & Tin Plate Company, Locust Point, Baltimore, Md., the men having refused to accept a 20 per cent. reduction.

THE BLACK PLATE MILLS of the Lalance & Groej an Mfg. Company, Harrisburg, P., are almost the only mills now turning out this product, nearly all similar works having been shut down pending the settlement of the wage scale. They are reported to be running full and as crowded with orders.

The Chicago Stamping Company of Chicago are putting in a Morewood pot, which was needed to bring the capacity of their tin plate plant up to the requirements of their factory.

It is REPORTED that an eight-mill tin plate plate has been located at Converse, Ind., through the efforts of the Converse Land Company.

A COMPANY has been organized at Atlants, Itd., with a capital stock of \$150,000, to put in operation at once the tin plate plant of the Indiana Tin Plate Mir. Company, now in the hands of receivers.

The New Castle Steel & Tin Plate Company, New Castle, Pa., have closed down their plant pending a set-

tlement of the wage question with their During the month of Auemp'oyees. During the month of August and that part of September in which the plant was in operation, the output of black plates of the very highest grade was the largest during any similar period since the concern started operations. David Elias, formerly su erintendent of the Cwmfelin Tin Plate Works, Swanses, South Wales, has been superintendent of the above plant since August 1. Had a reduction in the tariff not interfered with the operations of the New Castle Steel & Tin Plate Company it was the intention of the firm to considerably enlarge their plant, but just at present they have decided to do nothing in the way of enlargement until the outcome of the wage question is definitely known.

CUSTOMS REVENUES this week have been considerably sugmented by withdrawals of tin plates from bond, the new tariff of 1.2 cents a pound having become operative last Monday. Importers have been na urally allowing their stocks to accumulate in bond until they could withdraw them under the lowered duty, and the volume of goods thus held was abnormally heavy in this city, Philadelphia and Baltimore at the beginning of the month. It is estimated that between 200,000 and 250,000 baxes have been released in New York during the week, besides 80,000 to 90,000 each in Philadelphia and Baltimore. New York importing house alone is said to have paid \$40 000 in duties on Monday In addition to these amounts nearly all the importers have been carrying large quantities of tin plates in storage on the other side, where warehouse rates are considerably cheaper. Some of these stecks are already on their way over, so that the market will be well supplied for the next few weeks. No more opportune time could have been chosen for a pause in the operations of the domestic works. By the time the present wage difficulties have blown over the market should again be in shape for receiving the home

H. W. MERCHANT of Merchant & Co., Incorporated, Philadelphia, left last week for England by the "Paris" on business connected with the firm. Mr. Merchant will be absent about aix weeks.

MERCUANT & Co, INCORPORATED, Philadelphia, have this week made a reduction in the prices of their guaranteed American Tin and Terne Plates. The firm's Tin Plate works are reported in full operation, with a gratifying volume of orders for their well-known brands. Messrs. Merchant are receiving a very large pa'ronage for their Tandem Continuous Roofing Tin, the demand for which is so large that they are unable to turn out the material fast enough.

W. W. SANDERSON of Morris, N. Y., is agent in that place for the goods of the Fuller & Warren Company, and during the progress of the Morris Fair he extended invitations to visitors to call at his store and examine the lines of stoves and ranges which he had on exhibition. Mr. Sanderson is a believer in the efficacy of printers' ink, and in the local papers carries an advertisement in which the merits of the Splendid and Stewart goods are noted. In one announcement be states that ten first premiums have been secured thus far in New York State.

# Trade Notes.

THE COMMISSIONERS OF CANADIAN CEUNTY, Oxlahoma Ferritory, recently rurchase i steel cells for the jail at El Reno, the county seat. The cells are 7 feet fquare, 7 feet high, with exterior corridor in front 6 feet wide. The work was furnished by E. T. Barnum of Detroit, Mich., the well-known manufacturer of Wire and Iron Work.

CHARLES II. Low, president and manager of the Corrugated Elbow Company, Cincinnati and Chicago, with offices at Cincinnati, reports trade very satisfactory in volume. They are running their Chicago factory day and night and the Cincinnati factory on full time.

THE MARSHALLTOWN IRON & STEEL COMPANY, capital stock \$100,000, have been chartered to operate the sheet mill at Marshalltown, Del. The plant was first built in 1836, but it was not until 1830 that a ateam mill was erected. This has been enlarged twice since, in 1884 and 1889. Its annual capacity is rated at 3000 gross tons.

A NUMBER OF IMPORTANT IMPROVE. MENTS in the plant of the Cicveland Steel Company, successors to the Britton Iron & Steel Company, Cleveland, Ohio, have been made during the past few months. In the light plate mill, which is now in operation on single turn, the two heating furnaces are fired with oil on a new principle, which thus far has given entire satisfaction. temperature of escaping stack gases has been registered at 520°, a result that is regarded as quite astisfactory. On leaving the furnace the alab is carried to the rolla by an automatic chain table, the operation of which is comparatively noiseless and inexpensive. All the manipulations of the plate at the rolls are directed by a single operator from the top of the housing. The roughing mills are 26 inches in diameter. The middle roll is stationary, and the apecial device originated by Manager John A Potter makes it pos-aible for the manipulator to screw down the top roll to the middle one and at the same time bring up the bottom roll. The rolls of the second stand, through which the finishing passes are made, are 32 inches in dismeter, excepting the middle roll, which is smaller. From the finishing rolls the plate is taken to a table and marked, then sent through the trimming and squaring shears. A buckling machine atraightens out any buckles in the fiaished product and leaves a very smooth plate of excellent finlsh. The work of erecting two new sheet mills is la progress, and it is expected that these will be in operation in the next two or three weeks. The light plate mill is now turning out 22 tons in eight hours, the product ranging from 11 inch to No. 18 gauge. The galvanizing department, located on the opposite side of the railroad from the plate and sheet mills, is not in operation at present, but negotiations are in progress for the construction of a way under the tracks, and a conveyor will probably be put in for the transfer of the sheets that are to be galvanized.

THE OCTOBER CALENDAR CARD issued by the Joseph Dixon Crucible Company, Jersey City, N. J., shows a quali inside of a stack of Lead Pencils, with an appropriate quotation from Longfellow accompanying it. An excellent feature of these calendar cards is the back of blotting paper.

# STEAM AND HOT WATER.

### Compound Radiator Valve.

A new radiator valve for use in steam heating is being placed on the market by the inventor, James II IIntehinson, 529 West street. New York, with Cor-nell, Hiscock & Underhill, 13 Gold street, as selling agents. It is claimed that but one valve is necessary for each radiator where it is used, also that no air valves are required, and that each section of the radiator is quckly and thoroughly heated. Fig. 1 shows the valve complete, which is of the angle pattern and seated on a Jenkins disk. From the cut it will be seen that there are two openings in the bottom of the valve, one for the steam and the other for the return condensation, although the return opening, it is claimed, is unnecessary, as the valve is said to enable a single pipe system to work perfectly by means of the internal construction. The passage leading from the valve is divided horizontally into two parts, steam entering the radiator through the upper and the condensation returning through the lower part, a check valve

livered directly and independently into each section. Fig. 3 shows the valve with the distributing pipe connected with a radiator on a system where a drip pipe is used. The delivery of the

Utica, N. V. where their new sectional boiler for steam and hot water has been under an experimental test that has proven very satisfactory. The new boiler is built after a construction pat-

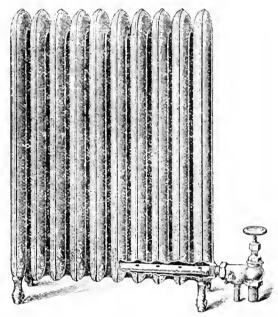


Fig. 3 -Showing Valve, Radiator and Distributing Pipe.

steam to each section heats the radiator quickly, and, it is claimed, disposes of the air so that air valves are not necessary. The condensation in the radiator falls on the outside of the distributing

Compound Radiator Valve,-Fig. 1.-General View.

preventing steam from entering into the latter. The large plug on the side of the valve enables the check valve to be removed, ground to its seat, or a new one inserted when necessary. This check valve prevents a reverse circula-



Fig. 2 -Distributing Pipe.

tion, and secures a positive circulation in one direction. Fig. 2 shows a distributing pipe which is attached to the valve and extends into the radiator with openings in it so that stesm is depipe, and leaves the radiator through the opening on the under side of the pipe. The valves were used during last winter, it is said, with excellent results. It will be seen that no special piping is required for the valves, which can be used with any radiator.

### HEATING NOTES.

Paul Steam System Company, organized at Portland, Maine, for the purpose of making and dealing in steam heating appliances, have fited certificate. Capital stock, \$1,000,000 of which \$50,000 is paid in. President, Edgar W. Anthony of Brookline, Mass.; treas urer, F. H. Monks of Brookline, Mass.

W. M. MACKAY, 211 Water street, New York, has returned from a visit to the main office of Hart & Crouse, at

ented by Mr. Mackay, and he is well pleased with so substantial a vindication of his ideas on the subject of boiler designing.

C. W. Hewson succeeds the firm of C. G. & W. G. Hewson, at 179 Christopher street, New York, in the house heating and steam fitting business.

Fuller & Warren Company, Troy, N. Y., issue a supplementary hot water catalogue that will be of interest to the heating trade. It shows the F. & W. Co. hot water heaters in their different styles, single and connected in the twin system. Views of the boiler sections and also of the grates are presented, and likewise full particulars and tables of the sizes and prices are given.

ALEXANDER DON, manager of the steam and hot water department of Du Bois & Darrow, 61 Gold atreet, New York, has just returned from a trip through South Jersey and Eastern Pennsylvania and All Right and Volunteer boilers mark his stops along the road.

THE SULLIVAN PLUMBING & HEATING COMPANY, Bay City, Mich., are rushed with business and keep a force of over a dozen practical mechanics working all the time. They have just received a carload of radiators.

THE BOARD OF MANAGERS of the American Society of Heating and Ventilating Engineers are holding weekly sessions on Monday afternoins at the Broadway Central Hotel, making preparations for the first annual meeting in January. They are also looking after the incorporation of the acciety, the printing of its by-laws, preparation of

certificates and printed matter, and will have several locations as permaneut headquarters to recommend.

THE HOHMANN & MAURER MEG. COMPANY, Phymouth and Jay streets, Brooklyn, N. Y., make a specialty of gauges and thermometers for steam and hot water work and also for use in laboratory practice, japanning ovens, &c.

E. C. Moses of the J. F. Pease Furnace Company, Syracuse, N. Y., called at the New York effice, at B ckman and Pearl streets, this week on his return from Philadelphia, which he visited in the interest of the Economy line of heating apparatus.

N. L. Frost of Smith & Winehester, Bos on, Mass., entertained W. A. Russell, 89 Centre street, New York, who brought to their notice the merits of the Detroit quick opening steam and hot water valves and the Niagara steam and hot water radiators for use in connection with their Winehester boiler.

THE EXETER MACHINE WORKS, 32 Olive street, Boston, Mass., are sending out circulars to the trade directing attention to the Exeter superheated ladiator bronze powder and bronze liquid, especially adapted for decorating radiators, steam pipes, &c. The bronze is made in various colors, including gold, silver, copper, green, fire, orange and lemon.

# HEATING PLUMBING.

### NEW WORK AND CONTRACTS.

J. J SULLIVAN has been a varded the contract for the gas fitting in the Gay apartment house on Chapel street, New Haven, Conn.

DISLEY & WEYAND have the contract for the plumbing in St. Anne's new school and rectory, at Waterbury, Conn.

THE NEW COLLEGE of the Missionarics of L<sub>1</sub> Salette, in Parkville, Conu, which is 48 x 113 feet, has the foundations up. It is to be heated by steam.

The Town of Westminster, Mass., has voted an appropriation of \$1300 to put new heaters in the High School Building.

The Plumbing Firm of B. R. Dibble & Co., Winsted, Conn., have been awarded the contract for plumbing the new factory under erection by the Metalliform Company.

THE CONTRACT FOR HEATING the new brick addition to the Road Cart Works, at Flint, Mich., and adjoining buildings was awarded to Geo. W. Hubbard on a bid of about \$2000. Some 15,000 feet of piping will be used in the work.

Thomas Dunlea of Binghamton, N. Y., is placing a heater in the First National Bank Building, at Susquehanna, Pa.

GRAY & TEMPLE have been awarded the contract for constituting steam heating apparatus in Firemen's Hall, at Linsingburg, N. Y.

THE SCHOOL COMMITTEE of Jersey City, N. J., are to advertise for bids for heating School No. 13.

FRANK BARCLAY of Beatrice, Neb., has the contract for heating the Whitin Library.

W. H. Bodine & Co, Bellows Falls, Vt., are about to start on the tin roofing of the new Arms Block. They have also contracted to do the plumbing work. The heating contract, however, has not yet been given out.

THE PARKE, LACY COMPANY have finished their contract for heating and ventilating the Garfield School, at Oakland, Cal., and have turned the job over to the Board of Public Works.

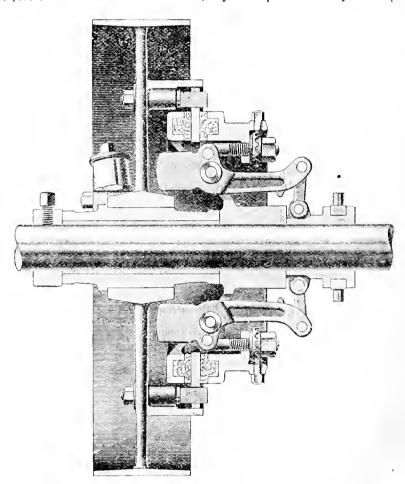
HENRY WILLARD, Milford, Mass., is doing the plumbing for the Molded Counter Company, at their Jefferson street factory. All the floors are to be piped for steam, about 2000 feet in all. Mr. Willard has also four different contracts to put in Page heaters.

The Ithaca Plumbing & Heatino Company, Ithaca, N. Y., have just finished the s'eam heating plant and the modern system of plumbing for the new Delta Kappa Epsilon Fraternity Lodge at Cornell University at a cost of \$1700.

Watson and have the contracts to heat J. W. Salzmann's new residence with hot air; also the new residences of Johnston Bros, and James G. Van Keuren.

### The Bliss Friction Clutch Pulley.

The E. W. B iss Company of Brooklyn, N. Y., have just placed on the market the friction clutch pulley of which we present a sectional view. Flexibly connected to the pulley is a friction disk against which the clutch members grip. By this construction if the pulley wears ont of true on the shaft no difference results in the operation of the clutch, no undue strains are brought on any of the parts and no adjustments are



THE BLISS FRICTION CLUTCH PULLEY.

EDWARD E. PARKER, Woburn, Mass., has lately secured the following contracts for heating private residences by steam or hot water: Thomas B. Road, Burlington, Mass.; Mrs. J. P. Converse, Charles H. Dudley, Charles W. Ames, David Cunes and Theodore J. Callahan, Woburn. A Gurney heater is to be used in the last house and Richmond heaters in the others.

THE CANFIELD STOVE COMPANY, Kingston, N. Y., report plenty of business in their heating, plumbing and tin departments. They have completed the steam heating system in the large new factory of the Hulson R ver Furniture Company, on Thomas street, also the hot water heating system in the residence of Dr. T. O. Kestor, Accord, N. Y. They are now busy installing hot water heating systems in the residences of D. S. Manchester and E. Mayers. They have recently completed the hot air heating systems in the residences of M. Schoonmaker and Robert

necessary to compensate for wear. There are only two clutch members, one keyed rigidly to the shaft to which the levers are attached, and the other movable. The levers are so balanced that at any speed at which the clutch is run the centrifugal force has no tendency to throw the clutch in or out of operation.

The clutching members are circular and concentric with the shaft, the only projecting parts being the levers. Four elbow levers are arranged at equal distances about the shaft. To the outer end of each lever is attached a link connected to a sleeve formed with a groove in which is the operating yoke. The movement of this sleeve serves to bring the friction disk in contact with the disk on the pulley. All necessary adjustment is provided by the screws shown. The horse-power which the various sizes of these clutches will transmit is obtained from tests by a dynamometer constructed for the purpose. The clutches are made for pulleys from 14 to 96 inches in diameter.

# STOVE TRADE NOTES.

### Gas as a Fuel.

In their fall catalogue of gas heating stoves W. M. Crane & Co., 838 Broadway, New York, make the following comment on the rapidity with which gas is growing in use as a fuel:

It has been already demonstrated that houses may be beated as well as lighted and dinners cooked by gas, and that it is possible to do without the grosser forms of fuel altogether. To heat a room, warm a both, or cook a chop it is surely easier and cleaner to turn on the gas when it is wanted, and turn it off when it is not. Nothing is more safe, economical and clean than gas in the way of fuel. What is called gas in coal is the only quality that is of practical value, either for fuel or illuminating; then why handle tons of coal, clean up ashes and dusty rooms. Acc., when all that is obtained from coal can be had on tap by connecting with the gas main? With the many improvements in the application of gas to a variety of uses, heading of all kinds and hiusehold work, it is only a question of time when gas will entirely supplant coal.

It is well to observe here that it has

It is well to observe here that it has been satisfactorily proven that gas even at \$1 25 per 1000 feet compares fa-v-rably with coal in cost for cooking compared on the dollars and cents basis. For hest ag rooms for a few hours it is probable that a favorable comparison in cost would result, but when the heat is required continuously throughout a win-ter gas would cost considerably more than coal. As an offset to this increased cast is the infinitely greater conven-ience, freedom from dirt and absence of labor, which, where the expense can be afforded, leaves gas the victor on the field. Gas is being sold in a number of cities at less than \$1 per 1000 feet, and in some as low as 75 cents, which will have two effects, one to incresse its u e as a fuel, the other to create a de mand for a reduction in price elsewhere that its convenience may be more widely enjoyed.

### Oak Garland Stoves.

The Michigan Stove Company have issued a handsome special catalogue of their Oak Garland line of stoves. catalogue comprises 12 pages and is gotten up in the most approved style of engraving and art printing by the Mat-thews Northrup Company of Buffalo, N. Y. Attention is called to the fact that the Michigan Stove Company present the largest line of Oak stoves in the market, consisting of the Oakdale Garland, the Syphon Oak Garland, the 1894 Oak Garland, the Horizontal Oak Garland and the Oak Pannant. There are suitable for any kind of fuel, hard or soft coal or wood. The Oakdale Garland is a lavishly ornamented all cast stove, both direct draft and revertible flue, made in two sizes. The Syphon Oak Garland is a richly decorated stove of original construction, giving a full base heating siphon flue to a boiler iron Oak stove, and is made in three sizes. The 1894 Oak Garland is claimed to be the tightest fitted stove ever made. All de tails are arranged to this end. The usual draft slide damper in the base has been replaced by a graduated opening in the upper part of the ash door, also used for shaking the grate, but when

clesced is drawn absolutely tight by a patent self locking latch, thus excluding the entrance of air even fr in this source. The stove is trimmed with an artistic urn and an elaborate foot rail and is made in four sizes, one size being smaller than is usually offered. The Ilbriz intal Oak Garland is a novelty in wood burning stoves, being ar anged for heating air by circulation as well as for furnishing heat by direct radiation. It is handsomely decorated and is made in two sizes with direct draft, and two sizes with revertible flue. The Oak Pennant is a moderate priced yet nicely finished stove, adapted to any kind of fuel and made in seven sizes, the smaller sizes being expected to displace cannon and extrage stoves.

### ODD PLATES.

M. M. Gowdy, Springfield, Mass., is offering the trade a sheet iron air tight heater, which is made under Cole's patent. It is referred to as being strong, durable, economical and comfortable, and specially adapted for use in parlors, bedrooms, offices, stores, school houses, It is made of American Russia iron and sheet steel, and lined with heavy sheet steel. It is claimed that the heater will hold fire for 48 hours with wood, and that the draft furnishes absolute control of the fire. The heater is made in several siz a with a capacity The heater for taking wood ranging in length from 22 to 28 ioches. A circular which Mr. Gowdy has issued illustrates and deacribes the bester, gives full directions for setting it up, and presents a number of testimonials from those who have used the atove. Mr. Gowdy reports an increasing demand for the heater, and states that its merits are being appreciated more and more as the trade becomes acquainted with it. The manufacturer expects to shortly increase his force to double the present capacity in order to meet the demands of the trade.

THE FOUNDRY of the Gladiator S ove Works, at Russell, Ky, was des'royed by fire on Tuesday, September 25, involving, it is stated, a loss of over \$40,000. The foundry had been running but a few days when the fire occurred.

A CIRCULAR just Issued by Ferris & Son of 813 North Twenty first street, St. Louis, Mo., describts the Queen heating stove, which is said to be so constructed that a large saving infuel results from its use. Wood is the fuel employed and it can be burned in the shape of large knots, chunks or chips, as the case may be. The Queen is referred to by the makers as capable of keeping a slow burning fire 48 hours, and that it will heat a room 20 feet square in a very few minutes in the coldest weather.

THE NORTHWESTERN STOVE REPAIR COMPANY of 509 North Fourth street, St. Louis, Mo., have devised an order blank which they are distributing to dealers for the purpose of facilitating the ordering of repairs for stoves and ranges. The blank carries at the top the name and address of the company, with a place to be filled in by the dealer,

designating whether the repairs shall be shipped by freight or express. The central portion of the ide k is divided into eight columns, covering the number of pieces, the name of the stove, its number, the kind of friel used, names of the parts wanted, the maker's name, the lates' date of patent, and whether front or pouch feed. At the bottom of the blank are lines for remarks, date, and the full name and address of the dealer ordering.

THE C. H. BENNETT FURNAGE COMPANY OF 289 291 Main street, Cincinnati. Obio, favor us with a copy of a 22 page entalogue, which they have issued for distribution among the trade. It relates among other things to "the true principles of warming and venti-lating as applied to schools, churches and other public buildings." Attention is given to the Bennett furnaces, which are illustrated and described at length. la numerous instances sectional views of buildings are presented with various part colored in such a way as to clearly show the construction, together with the course of air currents. The publication is arranged in a manner calculated to interest the trade, while the descrip lve particul ira are very full.

LEVI HEY & Co of Rocke 'c', NY, exhibited in Sove Hill at the fair recently held in that place a number of stores and ranges made by the Fuller & Warren Company, Troy, N.Y. The assortment included the Splendid Stewart, PP. Stewart and the Diamond Stewart stores and heaters. The exhibit was in charge of W. II. Dutcher, manager of the firm, who was ably assisted by J. A. Palmer, representing the Fuller & Warren Company. The exhibit also included the Perfection radiator made by Messra, Hey & Co, and which is meeting with a large sale throughout the country.

A COUNTRYMAN was so impressed with a gas store on exhibition in a city store, says the Philadelphis Ledger, that he invested in one, slihough there was no gas in the small village in which he lived. He did not know why the thing would not work until he had made a second trip to the city with his complaint.

RATHBONE, SARD & Co. of Albany, N. Y., have on exhibition at their New York sales om, 251 Water street, a full line of Acorn stoves and heaters, which are of special interest to the trade. The goods are made and finished in a first-class manner and thoroughly in keeping with the reputation which Acorn stoves have established. With regard to shipments the company say that goods are delivered in New York the day following the receipt of orders and in the case of telegraphic orders in less than 24 hours. The manufacturers are in receipt of advices from a cuatomer in Bradley, S. C., to the effect that during 30 years of married life he has used nothing but Acorn stoves and will never change his opinion that "they are the best on earth."

According to the Youngstown Telegram the stockholders of the Girard Stove Company, Girard, Ohio, held an

important meeting on the evening of September 25 at the Board of Commerce rooms. It was decided to increase the number of directors from seven to nine, and L. S. Crum and A. Obendorfer were elected to the board. It is stated that the directors have decided to keep their works in Girard unless the Board of Commerce offera greater inducements for them to locate in Youngstown.

AT THE FAIR recently held at Brandon, VI., an interesting exhibit of Stewart stoves was made by Stafford & Phelps, who occupied the space at the left of the main entrance. This concern are agents for the goods made by the Fuller & Warren Company of Troy, N. Y., and the display which they made was the center of interest on the part of visitors.

A REPRESENTATIVE of one of the Albany papers recently called upon leading members of the stove trade in that section, with a view of ascertaining their opinions of the business outlook for the coming year. Grange Sard of Rathbone, Sard & Co. is said to consider the present condition of business an abnormal one, but does not think it can be remedied by legislation. He is quoted as follows: "Things will right themselves unless some unlooked for calamity occurs, as for instance, the failure of the corn crop in the West. We are not giving our full force of workmen employment, nor are there any hopes that we will be able to do so fer some time."

EUGENE MUNSELL & Co., 218 Water street, New York, are meeting with a good demand for their specialties, and we understand that their shipments during the past few weeks have been heavier than for any corresponding period during the past year and a half.

The Mars square parlor heater is a construction of medium price that is being shown by George Starrett, 227 Water street, New York. The stove has nickel skirt, foot rails and dome, and has a large illumination. It has all the modern conveniences for cleanliness and saving of labor. Although the a seller.

ADVICES FROM ALBANY are to the effect that the plant of the Albany Stove Company, which has been idle for a long time past, will soon resume operations under a new management. The entire plant has been renovated and improved and sidings from the railroad tracks have just been laid to the door of the building, thus giving good shipping facilities.

Cole & Cole of Omaha, Neb., are vigorously pushing the sale and manufacture of their new air tight heater, which was illustrated in these columns not long ago. Less than six weeks since they began the manufacture of this heater, turning out at the start a few degen stoves per day, which was the full espacity of their works. They have now devised the machinery necessary to turn out over a thousand a month, and they are giving employment to a force of 25 men. Orders for the stove are said to be coming in from every section of the country and also from Mexico.

THE KEISEY FURNACE COMPANY, Syracuse. N. Y., report a very gratifying condition of bus ness at the present time. They state that the actual sales of Kelsey furnaces for the month of September of the present year exceeded by 50 per cent, the sales of the heaters

for the corresponding month of any previous year.

THE PERRY STOVE COMPANY of Albany, N. Y., are running their force of 300 men full time and are enjoying a very good business. Nathan B. Perry considers the business prospects very good.

A. Weiskittel & Son, Baltimore, Md., favor us with a four-page folder, printed in colors, illustrating and describing the Fire King gas grates, radiators and heaters. These goods are made in various sizes, adapted to meet different requirements, and are offered the trade in very attractive style. The gas grates are referred to by the makers as being first class in every particular and fitted with an improved burner, which gives great heat, and combination cocks, so that the burners can be regulated to use any kind of gas. The radiators are made with and without casing, the latter, it is claimed, adding much to the finish of the goods, making them resemble steam or hot water radiators, which are used in fine apartments.

THE WALKER & PRATT MFG Com-PANY of 31-35 Union street, Boston, Mass., send us a copy of a well printed and attractive catalogue relating to their new range known as Walker's Culinet. The stove is unique both in appearance and general construction, the arrangement of parts being such that the fire box is at the front of the stove, the oven is elevated and every. thing easily accessible. There are five boiler holes, with the fire directly under the two front covers. The fire box is oval and is fitted with either a plain grate of improved form or the company's patent triple shaking grate. The shape of the oven is such that at any time it may be divided by a partition plate to form two ovens, the oven rack being exchanged for a pair of racks of half the size. The oven is heated on all sides and occupies about the same position as a pipe shelf or an elevated oven in an ordinary construction. peculiar feature of the stove is the hot water boiler, which is placed in the vacant space behind the fire box, about where the oven would ordinarily be found, and is exposed to the direct sc-tion of the fire, thus doing away with the use of the common form of water front and connections. The boiler is of cast iron made in one piece, the largest size having a capacity of 40 gallons. The boiler rests upon the main bottom of the stove, the opening through which it extends into the fire box being made tight by a putty joint. The service pipes may be connected at either end of the boiler, as desired.

D. G. LITTLEFIELD of the Littleficld Stove Works, Albany, N. Y., is reported in an interview with the representative of a local paper to have expressed the opinion that the prospects for business are very fair, but he is not thoroughly convinced that the favorable outlook will continue for any great length of time. The company are running their force full time whereas last year the men were only engaged every other day.

GEORGE STARRETT, 227 Water street, New York, finds an increasing trade in Craig's steel, for which he is the manu facturer's agent. In order to show its merit Mr. S'arrett's sales men carry a half pint cup made of this material, the bottom of which is double seamed and the top rim wired. A handle of the same material is edged and swedged as

well as riveted to the cup. Another evidence of its toughness is shown in its adoption for the top of the Star oil heater, which is stamped up in very ornamental form and perforated without a break. The top of these stoves was previously made of spun brass. Stove dealers are using this material freely for bodies in cylinder stoves and for piping where a nest finish is required.

"HOME COMFORT COOK BOOK" is the title of a 168 page volume which reaches us from the Wrought Iron Range Company of St. Louis, Mo. Among the opening pages we find a bird's eye view of the company's works at Toronto, Oatario, an interior view of their salesroom in the hotel kitchen outfitting department in St. Louis; a photo-reproduction of their exhibit at the World's Columbian Exposition and also of the display made this year at the California Mid-Winter Fair. There is also brief mention of the fact that the Wrought Iron Range Company furnished the New Planters' Hotel in St. Louis with its kitchen outfit and also supplied kitchen outfits for the Union Station Ca'é Company at the new Union Station in the city named. As indicated by the title of the volume, the greater portion of its pages are devoted to recipes for the housewife. There are also long lists of names and addresses of people in St. Louis using the Home Comfort range, together with illustrated letter press relating to Home Comfort goods, hollow ware, culinary appliances, hot air furnaces, &c. An alphabetically arranged index together with directions for operating Home Comfort ranges are other features of the work.

H. WATERMAN, local manager of the Cleveland Foundry Company, and with offices at No. 107 Beekman street, New York, has just returned from a tour among the trade in Philadelphia and Baltimore.

THE CHICAGO & ERIE STOVE COM-PANY of Erie, Pa., have issued a circular calling special attention to the novel character of the new ges burner used in connection with their gas heaters. It is called the Multi radiating burner, and is claimed to give an extra heat to the gas before it reaches the fire, thus "improving combustion and economizing in fuel." The company have also issued a new circular of the Sapphire gas stove, which is supplied to the trade finished in extra nickel or brass, according to preference. The success of this stove has been such that the company have added a new top, two side pieces and a fender.

WE ARE ADVISED that Sam S. Utter of 113 Beekman street, New York, made shipments during a recent week of eight carloads of Parlor, Game and Bantam oil stoves, with Denver, Col., and San Francisco as the destinations. We are also informed that Mr. Utter's local trade has increased in comparison with sales made during the corresponding periods of last year.

BROOMELL, SCHMIDT & Co., York, Pa., are furnishing the trade with a little pamphlet entitled "House Heating from the Kitchen Fire," and consisting of testimonial letters from a few of those who have used the Heatencook range for cooking and as a house heating apparatus. The manufacturers state that they are daily in receipt of many inquiries concerning this stove and are making very satisfactory sales. Accompanying the pamphlet is a clipping from the York Dispatch of September 22 and entitled "The Result of a Hint."

THE FULLER & WARREN COMPANY of Troy, N. Y., are the assignees of a patent recently granted to G. G. Wolfe for a grate and fire chamber for stoves and ranges. The invention relates especially to the manner of constructing and arranging an oval grate to adapt it to be horizontally rotated on its center, for use in combination with an oval fire chamber. The object of the construction is to prevent the piling up of coal at the ends of the fire chamber, where the best combustion of fuel is not possible, and to effect a vigorous and effective combustion at all points. The grate proper is made with air passages, and is constructed with a downwardly projecting foot at the front. The grate rests on rollers in the frame and has downcast serrated ends and a downcast serrated rim surrounding the central opening. The frame is attached to the inner walls of the stove by proper connections, and is constructed with a cross web or brace, slide ways and rollers turning in slots, with the faces of the rollers prejecting above the face of the frame. the frame. The draw center part of the grate is formed with projections on ita side edges and an outward projection on its urder side edges opposite. The projection is arranged to rest loosely in the slide ways of the frame and the outturned projections to pass in under the lower edge of the slide ways at each side, for the purpose of keeping the parts in place as the draw center is moved out or pushed in. At the front of the draw center part of the grate is a U shaped opening, which widens out as it extends toward the front. At its inner end, near the center of the grate, it is constructed with a shelf made with an opening for the entrance of a pivot pin on the lower side of the shaking bar, the latter being made with a longitudinal slot to receive the downwardly projected foot of the grate proper. When it is desired to dump the fire the shaking bar is drawn out, and with it the draw center portion of the grate, which leaves au opening through which the contents of the fire chamber may be passed to the ash pan.

The Excelsion Mfg. Company of St. Lou's, Mo., are furnishing dealers with a sheet carrying proof impressions of a number of advertisements of the Charter Oak stoves, suitable for use in a variety of ways. The advertisements are made up in pleasing style, each occupying a space equivalent to from 2 to 3 inches of an ordinary newspaper column.

The New Home Furnace Company, recently organized at Norwalk, Conn., will have their goods made by the Economy Foundry & Machine Company, Syracuse, N. Y., under patents granted to Gen. George D. Surford of Albany. The concern was organized by Mr. Sanford, with whom are associated Brown & Co. of Syracuse, N. Y, and George H. Raymond of Norwalk, Conn. Mr. Raymond will have general control of the business, with headquarters at Norwalk.

The works of the Joseph Bell Stove Company, at Muncie, Ind., are said to be running with an increased force and that the company are behindhand with their orders. The prospects are reported to be favorable and the indleations are that the works will be kept running full capacity for some time to come.

THE A. C. BARLER MFG. COMPANY, 111 and 113 Lake atreet, Chicago, have a very fine exhibit of their oil heaters at the St. Louis Exposition. It attracts

much attention and is highly praised by a constant stream of visitors.

THE DETROIT STOVE WORKS have received the following interesting communication from one of their customers, McNary & McNary, Martinaville, Ill., under date of September 25: "We sold to Levy Wells of this place a No. 225 Royal Jewel wood base heater in the fall of 1892. He ran that stove all winter, heating three rooms and a hall, on less than 2½ cords of 4-foot wood cut from one hickory tree. Who can beat this record?"

J. H. Cont & Son, Adams and Water streets, Brocklyn, N. Y., are issuing to the trade a 24-page catalogue of gas heating goods. The first pages are occupied by the Cort re flector stoves. The next three pages show the Cort perforated gas stove, which is entirely new this year. The body is ornamented with colored glass jewels, and an internal cylinder takes the heat to the top of the stove, from whence it is passed down outside of the cylinder and escapes through the perforations. The rext pages are devoted to the E'ectric heater, which is made both as a reflector and with an asbestos flame plate. These are followed by two styles of portable gas grates, after which comes a fire place grate, designed to be used in connection with a mantel. Another of their new things is shown in the Cort gas radiator, which is made in three sizes, each of the heating tubes being arranged with an inner heating tube which carries the hot air from the flame to the top of the radiator, where it returns on the outside of the tube and escapes at the bottom to the floor. Then follow their line of Perfect oil heaters. the No. 20 being a new stove this year, with a 15 inch circular wick and presenting a very attractive appearance. The No. 6, also new, has a 10-lneh circular wick, and is designed for use in bathrooms and other small apartments. The last page is devoted to gas and oil stove sundries.

THE MICHIGAN OIL STOVE COMPANY have been formed at Benton Harbor, Mich., to manufacture a stove of original design. They have placed an order with the Benton Harbor Iron Works for 500 kerosene oil burners.

THE HOFFMAN-RUSSELL COMPANY, 82 Lake street, Chicago, report that the demand for Triumph heating furnaces is so great that they have difficulty in filling orders.

THE KELSEY FURNACE COMPANY of Syracuse, N. Y, show, by means of a four-page folder which they have just issued, the Kelsey Generator, which is a hot water boiler converted into a warm air furnace. The device consists of a series of corrugated V shaped tubes, through which fresh air circulates in-stead of water. The cold air is taken from the outside by means of a duet to the generator, and passed through the upright corrugated cast iron tubes instead of through radiating atecks, as in the direct system of steam and bot water heating. By this means the com-pany claim that they secure "all the advantages of the later method without incurring the risks, and pure, fresh, warm air is assured, as the circulation through the corrugated tubes is rapid and continuous." The folder shows the heater with the outside easing broken away so as to indicate the arrangement of parts.

GROSSIUS SONS of Cincinnati, Ohio, are running their works full capacity.

They state that their furnace trade is especially large at this season of the year.

THE NEW YORK OFFICE of the Cleveland Foundry Company, at 107 Beekman street, are sending to the trade a circular letter in reference to the Puritan oil and gas heater, with which is inclosed one of their 1894 catalogues.

A fire which broke out in a pile of old flasks in the yard of Cribber, Sexton & Co.'s stove works, on E-lestreet, Chicago, on the evening of the 24 inst., was greatly magnified in the daily press. The loss was slight and the foundry was not damaged in the least.

The Smith & Anthony Company of Boston, Mass., are shipping a carload of Regal Hub ranges to Bernard Me-Canghey & Co. of Pawtucket, R. L., this being the second carload of the Regal Hubs that have been shipped to this firm during the year. Mesers. Me-Caughey & Co. find the wire gauze oven door a splendid selling point. The large and cleanly hearth and ash pan of the Regal are also points which the Pawtucket people seem to appreciate, and serve to make the Regal Hub the leading range in that market.

THE WHITE MFG. COMPANY, 40 and 42 State street, Chicago, offer to the trade their improved Perfection oil heater, which made its first appearance last season and met with gratifying success. It is a small stove, weighing but 15 pounds, yet it has satisfactorily demonstrated its efficiency in heating rooms without aid from any other source. Being so light in weight it is particularly recommended by the manufacturers for use in rooms in which only a temporary heat is required—pamely, bathrooms, chambers, &c. It has a cast iron base to support the fount, above which is a perforated Russis iron drum, finished with a nest removable canopy, covering a perforated top, which can be used for heating water.

THE ENTERPISE STOVE COMPANY of Vincennes, Ind., Edvise us that their anticipations regarding the sale of their Radiator heater have been more than fulfil'ed. The goods are sold far ahead and the company are running their foundry seven days a week without working Sundays. This is done by overtime on week days. The company's coal and wood ranges are also in good demand, and, from the letters received by the makers, evidently give entire satisfaction.

THE EDWARDS PARLOR LAMP STOVE COMPANY have removed their main office from the Masonic Temple to 123 Dearborn street, Chicago. They are now at work on a new stove which will be ready for the market in a very short time. The company issue a bright little Illustrated pamphlet regarding their lamp atove, entitled "All About A. M Kitchen is president of the corporation, Charles Hudson is secretary and treasurer, and O. H. Wallop of London, England, is vice president. Mr. Wallop has organized a company in London, with a capital of £50 000. to manufacture these lamos, having purchased the patents and the right to aell in all European countries and Australia, besidea being entitled to sell all improvements hereafter made. foreign company is named the American Lamp Stove Company, with offices and showrooms at 6t and 65 Holborn Viaduct, Londoo, E. C. They issue a 16page illustrated catalogue, showing the several styles in which the stove is made and the uses to which it can be

# TRADE REPORT.

### The Iron Market.

American Pig.—Buying in the New York market contiques on a limited scale. The attitude of the makers of standard brands of Northern trons is watched with some interest. The question is whether they will continue indefinitely the policy of holding prices consider ably above those at which Varginia and Alabama Irons are selling. A good many good customers have been learning how to get along with a smaller percentage in their mixtures and others have been forced by competition to do away with it entirely. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12 for No. 1; \$11 @ \$11.25 for No. 2; \$10.65 @ \$10.75 for No. 3; \$10.90 @ \$11 for No. 2 Soft, and \$11.15 @ \$11.25 for No. 4 (Foundry Forge) is \$10 @ \$10.40.

Our Philadelphia advices indicate that sales in that market have been on a larger scale than seemed likely two or three weeks ago. So much was taken in August that a falling off was expected for September, but it maintained the record. Whatever the cause, the fact is beyond dispute that prices made no improvement, and with a full supply of material in consumers' yards it is hardly to be supposed that the demand will be as heavy in October as it was during August and September. Furnaces are well sold up, however, so that the chances are thought to be fair for a steady market at unchanged prices. General quotations for Pailadelphia and nearby points are about as follows:

 Standard No. 1 Foundry X
 \$12.50 @ \$12.75

 Standard No. 2 Foundry X
 11.50 % 11.75

 No. 2 Plain
 10.75 % 11.80

 No. 1 Soft
 11.50 % 11.75

 No. 2 Soft
 10.75 @ 11.00

The sales of the week in the Chiesg? Pig Iron market included several round lots of Coke I on, and inquiries are still coming forward. The situation looks as encouraging as ever for future business from the standpoint of local makers. Somewhat higher prices are being asked, and instances are noted in which the advance is sustained. Conditions are such that at almost any time a marked upward movement is to be expected in this class of Iron. Some fair inquiries are in 'he market for Southern Soft Irons, but prices are held at comparat vely high rates owing to the better demand for Southern Irons from other localities. Lake Superior Charcoal is still very quiet. This is due to the fact that Malleable Iron makers are taking increased quantities of Coke Bessemer for their purposes, which displaces very much Charcoal Iron. Quo tations are given as follows for cash.

and Bridge and Indian		
Lake Superior Charcoai	\$14 50 %	\$15,00
Local Coke Foundry, No. 1	10.25 @	10.50
Local Coke Foundry, No. 2	10,00 @	10,25
Local Coke Foundry, No. 8	9 50 %	10:0
Local Scotch	10.25 6	1110
Ohio Strong Softeners No. 1	13.00 @	13,50
Southern Silvery, No. 1	@	
Southern Slivery, No. 2	Q	
Southern Coke, No. 2	10.75 @	11.25
Southern Coke, No. 3	10.50 @	10.75
Southern, No. 1. Soft	10,75 🐼	-11.25
Southern. No. 2, Soft	10,50 @	-10.75
Alabama Car Wheel	17.50 60	15,00
Jackson County Silvery	15 50 @	16,00
Other Ohio Silvery	14 25 @	14.50

The situation in the Pittsburgh district is practically the same as noted last week. The demand for Foundry Iron is of a hand-to-mouth character, but prices show no charge one way or the other. We quote as follows:

No. 1 Foundry.........\$11.75 @ \$12.00 Cash. No. 2 Foundry........... 10.75 @ 11.00

Cincinna'i advices are as follows in regard to that market: The general tone of the market has been and still is easy for Southern Pig Iron, but not to the extent of warranting any lower quotations, for while the demand is mainly of a jobbing char acter, it has enlarged sufficiently to be encouraging, and the aggregate sales foot up about 20,000 tons for the week, although none of them were large, and seldom reached 1500 tons in any one lot. There have been liberal sales for Eistern shipments, for the proposed advance in freight rates on October 1 stimulated buying, but that has now been postponed until the end of the year. The indications are that the consumption of foundry grades of Southern Coke Iron is keeping fully abreast of the production, and if this is so there will doubtless continue to be a confident undertone to the market. Quotations are as follows:

In the St. Louis market prices appear likely to be ent to a considerable extent by the larger furnaces which have hitherto refused to meet the lower prices. No. 2 Foundry is the grade which seems to be about the weakest, \$10 being the quotation for that grade. Quotations are given as follows for eash, f.o.b. cars S. Louis:

 Southern Coke, No. 1 Foundry
 \$10.75 \$11.00

 Southern Coke, No. 2 Foundry
 10.00 \$10.25

 Southern Coke, No. 3 Foundry
 9.50 \$9.75

 Southern Car Wheel
 16.59 \$17.00

### Metal Market.

Pig Tin.—Prices for wholesale lots have declined considerably in the face of fairly liberal purchases by jobbers and consumers, and considerable covering of speculative "short" accounts. Spot stock has been accepted at nearly 10 metric with the liberal price obtained a week ago, but the latest sales showed some reaction from the lowest prices. The decline was due chiefly to the weight of unusually heavy supply of Tin in sight. Official records place the visible supply for Europe and America on the 1st inst. at about 23,300 tons. They also make it appear that deliveries were remarkably large. This would warrant the inference that the invisible supply, otherwise stocks

in jobbers' and consumers' hands, has increased considerably. Prices for small lots from store are unchanged on a basis of 174¢ \$\vec{v}\$ lb for Straits Pig.

Copper.—I pwarl of 500,000 lb Lake Superior Ingot have been sold at or about 9\(\frac{3}{2}\psi\), for delivery during the balance of the year. A good business in E ectrolytic at about 9\(\frac{1}{2}\psi\) has also bren effected and liberal quantities of ordinary casting stock were placed at 9\(\frac{1}{2}\psi\) To some extent the business was speculative, but it is claimed that consumers were the chief buyers and that the proposed agreement of producers as to output has had nothing to do with the movement. Jobbers report a fair business in Lake Ingot, the price for small retail lots remaining at or near 10\(\frac{1}{2}\psi\)

Sheet Copper. — Compared to the business of the last few months there has been quite a good buying provement in Sheet Copper for cornice and other work, and inquiries show a very gratifying expansion in volume. The aggregate of business, however, falls somewhat short of expectations and is still below the season's average. Prices are firm and the inclination of the market seems to be in the direction of higher rates, with an increasing trade.

Pig Lead.—The market has been somewhat softer and is rather weak in appearance at the present time. A considerable amount of foreign Lead has arrived for delivery on contracts made some time ago with the largest consumers, Exports have at the same time made a good showing. It is clear, however, that a surplus over home wants remains sufficient to keep the market in a rather weak condition. Jobbers are asking 3\(\frac{3}{4}\phi\) @ 3\(\frac{3}{4}\phi\) a 1b for American Pig and experiencing oaly a moderate demand.

Spelter.—The demand is tame and the market generally has a soft appearance. Prices for small lots of Western are maintained at about  $44 \, \phi \, \widehat{\phi}$  lb, fancy brands securing the customary premium.

Aluminum.—The Pittsburgh Reduction Company announce the following priets on Aluminum Ingots in ton lots: No. 1 Aluminum, 98 % pure, in rolling ingots, 58¢; No. 1, 98 % pure, In ingots for remelting, 53¢, and No. 2, over 94 % pure, cast in ingots for remelting, 50¢ % lb. For small lots, the prices are respectively 63¢, 60¢ and 55¢.

Tin Plate — There has been rather more buying and also some improvement in the demand for both prompt and future deliveries, which served to stiften prices to the extent of about 5¢ \$\varphi\$ box for 14 x 20 Plates from the lowest point recently touched. The market, however, has been rather disappointing and has not shown the spirit that was looked for. Orders still partake largely of the hand-to-mouth nature which has characterized them for so long. The wants of the larger consumers appear to have been provided for in advance by contracts made some time ago, while the expectation of a further reduction in prices is probably preventing producers

from doing much in the way of future business. Canners' requirements are practically all satisfied, so that the demand from that quarter is very meager. Free atocks in importers' and jobbers' hands are now pretty full owing to the large withdrawals from bond under the new duty, which have been made dur-ing the week. Supplies are large at English shipping ports and imports are likely to be heavy during the coming weeks. This knowledge helps to keep down prices. For small lots from stock, quotations on imported Pates have been reduced from 75¢ to \$1 ? box on 14 x 2), and \$1 50 to \$2 7 box on 20 x 28 Plates. Domestic Rooting Plates of the higher grades continue in very fair demand, and the home manufacturers are reducing their prices to meet the cuts made in those for the foreign material. The closing down of the greater part of the American works pending the rearrangement of the wage seale will reduce the output of American Platea considerably.

A London cable dispatch of October 3 to The Iron Age reports on the British Tin Plate market as follows: Tin Plate has been dull, in the face of fair inquiry, buyers' and sellers' views on prices being considerably apart. Shipments have been heavier, however, and stocks at primal points are reduced considerably. It is not believed that prices will improve until those shipments have been disposed of to a considerable extent. Swansea quotations are as follows:

are as tottows.

Bessemer Cokes, 1C 10 3 @	
Siemens Cokes, IC 10, 4 %	
J. B Steel Cokes, 1C 10,6 @	
Dean Ternes, 20 x 28 22 @	237
Charcoals, IC	12, 6

Sheet Iron.—The mills producing Black and Galvanized Sheets are crowded with orders, and manufacturers' agenta are asking, in some cases, a slight advance in prices where prompt shipment is required. Prices for Black Iron are rather firmer, No. 27 Common in small lots heing quoted at 2.65%. Jobbeta report quite a brisk demand for Galvanized Sheeta, small lots of which are quoted at 75 and 5% off, although it is still possible to obtain 75 and 10% off on favorable orders. London cable advices state that large orders have been placed in the English market for Black Plate at £7, 15/ for Siemens, chiefly for delivery in the Southern States.

# Chicago Report.

Scrap.—Old Material is gradually growing in importance as a factor in the market, but values so far have not moved up more than a trifle on some special grades. Dealers quote the following list of buying prices, Chicago delivery:

Per	net ton.	Let 10
No. 1 Wrought Scrap	<b>\$7.00</b>	
Machinery Cast	6.00	
Matleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3,00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&c	3,00	
Old Boilers-whole (Iron)	3,00	
" (lron)—cut in single		
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3.00	
Turnings	4 00	
Horseshoes	7.00	
Copper Bottoms		53/61
Copper Clips and Heavy		7 9
Heavy Brass		5360
Light Brass		3 6
Pipe Lead		21/4

Tea Lead	2 ¢
Zinc	2 6
Rubber	3, 11

Anthraelte.—A little improvement in trade is noted with the approach of colder weather. Carload lots of 12 net tons or over are quoted as follows:

	mgg, nu			
	Grate.	and Ch		
Chicago, Ill		<b>\$</b> 5 (0)		
Milwankee, Wis	4.75	5,00		
Kansas City, Mo	7.95	5.21		
Council Bluffs, lowa	7.95	8 20		
Lincoln. Neb	5.10	8.35		
	7.95	5.20		
Sionx City, Iowa	8.00	5,25		
Aberdeen, S. Dak	6,05	6,30		
Dubuque, Iowa	6.25	6.70		
Madison, Wis		7.50		
St. Paul, Minn	7.25			
Burlington, lowa	6,25	6.50		
Des Momes, lowa	7.70	7 95		
Davenport, Iowa	4,05	6.30		
St. Joseph, Mo	7.95	8,20		
Leavenworth, Kan	7.95	8,20		
Omaha, Neb	7.95	5.20		
O				

### Colorado Anthracite.

COLORADO FUEL & IRON COMPAN	Y.
Denver	\$8.00 8.00
Paeblo	
Colorado Springs	8.00
Leadville	
Cheyenne, Wyo	10.00
All points between Denver and	8.85
Missouri River	5,50

### CONDITION OF THE

# Hardware Trade.

THE RETAIL TRADE in many sections are apparently experiencing an improvement in their local bustness, which, while not bringing up the volume of trade to a normal average. is regarded as giving indications of a more satisfactory condition of things before long. Their orders are more frequent and better assorted that heretofore and remittances are usually sent with a good degree of promptness. There is a good deal of unevenness in the reports of manufacturers in regard to the improvement which is apparent in the business situation, some of them reporting trade much better than it has been and considerably in excess of last year, while the experience of others does not justify so favorable a report. The condition of business through the country at large as seen by representative jobbers is given in the following reports from our special correspondents in the principal markets. do not as yet show any general improvement, and on many lines of goods are low and somewhat irregular.

Advices from Chicago.-The general Hardware trade is in fair shape in comparison with lusiness dur-ing the first half of the year, but the demand is somewhat spasmodic. days of heavy business being followed by other days of comparative dullness. Some houses seem to be more favored than others. One instance is noted in which a jobbing house has been obliged to add an additional been obliged to add an additional floor for shipping purposes, and during the week was obliged to work this de-partment at nights to keep up to the igrush of orders. House Furnishing Goods and Tinware are in much better demand, but orders are still coming in mainly for broken lots. The Rocky Mountain States are buying more freely now than at any previous time this year. Some fine orders have come in from that section during the past fortnight. This indicates a much more confident tone among the merchants of the Silver States, and it is pleasant to note the improvement in that section. The Tin Plate situation is unsettled. Jobbers differ materially in quotations and it may be a week or two hefore they get together and the market becomes more strictly defined.

### Notes on Prices.

Wire Nails .- The Wire Nail market is characterized by a perceptibly better to ie than a week or ten days ago, and, as a result, prices are a little firmer. The market is represented by the quotation of \$1, at mill, for carload lots, a figure which is well maintained by the manufacturers. The improved condi-tion is regarded as resulting principally from action recently consummated, by which the manufacturers hope to do away with, or at least diminish, a disturbing influence in the market, the of feet of which has been felt for some time, as Nails have been off red at what appeared to be irregular and exceptionally low figures by parties operating in the interest of one of the mills. It is rumored, however, that the product of this mill hereafter, for a time at least, will be under the control of other manufacturers. The market is undoubtedly in better condition than it has been, and the manufacturers are holding prices steadily. The New York price continues \$1 20 on dock and \$1 25 to \$1 30 from store.

Advices from Chicago.— Manufacturers are now asking better prices, having evidently made some new arrangement during the past week which gives them a firmer basis of operation. Quotations on factory lots are about \$1.10, Chicago, and if this rate is maintained or advanced jubbers say that they will very shortly be obliged to advance their quotation of \$1.15 on small lots from atock.

Cut Nails.—The Cit Nail market is not especially active, but there is a fair volume of business, probably as large as should be expected in the general conditions of trade. Prices are unchanged, and are represented by the quotation of 90 cents for carload lots on dock, New York, with the usual average, while small lots from store are held at \$1.05 to \$1.10.

Advices from Chicago.— Manufacturers report a much larger volume of bisiness coming in from all parts of the Northwest. Orders are not much larger than they have been, but there are more of them. Jobbers quote small lots from stock at \$1.10 to \$1.15.

Barb Wire.—There is not much activity in the Barb Wire market and prices are unchanged, the tone of the market not being perhaps quite so strong as it has been. Four-Point Galvanized is quoted as follows: Pittaburgh, \$2 to \$2.05; Cleveland, \$2 05 to \$2.10; Cincinnati, Allentown, Chicago and New York, \$2 15 to \$2.20.

Advices from Chicago. — Scattering orders are beginning to come in for spring delivery. These are welcomed as an indication of much larger business of the same character to be placed this month. Manufacturers have latterly been large purchasers of Wire Roda and are evidently looking forward to as large a business this fall and winter as ever. A little irregularity is noted among jobbers, but leading houses continue to quote \$2.30 for small lots of Galvanized from stock, with the usual altowance for carload lots. When shipments can be made direct from factory to buyer lower rates are quoted by jobbers.

One-Minute Dish Washer. — This Dish Washer is put on the market by the Bolgiano M(g. Company, Baltimore, Md., by whom it is sold to the trade at \$60 per dezen, subject to a discount of 50 per cent.

Steam Clothes Washer.—Bolglano Mfg. Company, Baltimore, Md., are Justing this article on the market, a description of It having appeared in our issu: September 29. The Clothes Washer is sold to the trade at \$6 per dezen, subject to a discount of 50 per cent.

Screws.-During the past week there has been a flurry in the Screw market owing to a projected advance, which though made known to many in the trade failed to materialize. In view of the unsatisfactory condition of the market and the low prices which have prevailed conferences were held by the manufacturers with a view to advancing the price and making the base discount 83½ per cent. instead of 85 per cent. as at present. It was thought that the way was clear for such advance and some of the manufacturers made announcement to that effect, but it was found that one of the manufacturers whom it was hoped would unite in the action did not deem it advisable to do so. As it was the un-derstanding that the advance was on the condition that all the makers should unite, the project therefore fell to the ground, and those manufacturers who had made announcements of the change countermanded their advices to that effeet. As a result the market has returned to its former condition without any change in prices.

Glass.—The American Window Glass market is in much the same condition as reported last week. The demand is fair for immediate consumption, but jobbers are buying sparingly. There is also a noticeable absence of any speculative tendencies, as there is a feeling among the trade of uncertainty regarding future prices. It is reported that further declines in prices have taken place for double strength Glass. New York importers of French Window and Picture Glass have adopted a new pricelist, which went into effect October 1, and which we print herewith. There is a allght change in the arrangement of brackets and a reduction in list prices, which, the importers explain, was made to correspond to the change in tariff. The list is subject to a discount of from 60 and 10 and 5 to 70 per cent. in any quantity. This revised list has not been adopted by importers outside of New York:

Light Book Shavings	Ib IL		<u> </u>	560	
No. 1 Mixed Shavings# No. 2 Mixed Shavings#	B			8/4	
No. 1 Printed Books **	Þ			1746	
Ordinary Mixed Books	Ъ	- 1/6	0	840	•
Newspapers	В			2-50	į
No. 1 Manila Paper	ľb	8/4	0	1 4	į
No. 2 Manila Paper	Ъ			8/4	
Bogus Paper	D				
Common Paper	ľb			1,0	
Straw Chips	Ъ			8/10	ŧ
Binders' Clippings	D			369	¢
Jute Butts		,			
No. 1 Jute Bagging#	В			1 0	
Mixed Bagging	116	8/	@	1 0	í
No. 2 Bagging	Th			3/4	
Hemp Twine				2	
Manila Rope				21/6	
Jute Rope₩	Ip	11/4	(4)	18/40	į
Mixed Rope₩	100	1 3/4	0	369	į
			-		

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, # 1b	Ø	<b>\$0.03</b> 1/2
Rubber Shoes, carloads, de- livered at factory, # b	0	.04%
Rubber shoes, less than car- loads, # 1b	മ	.04
Large Hose, # ton		
White Wringer Rolls, # 15	@	.03%
White Syringes, # 1b	0	.0334

Old Metals.—Prices show no radica, change, the following quotations representing about the rates now pald by dealers in New York:

Heavy Copper 15 614
Light and Tinned Copper # 1 6
Heavy Brass # 15 41/4
Light Brass # 1b 3%40
Lead # 15 2840
Tea Lead # 10 21/20
Zine
No. 1 Pewter
No. 2 Pewter \$ 15 5
Wronght Scrap Iron. # gross
ton \$7,50 @ \$8.00
Heavy Cast Scrap # gross
ton 7.50 @ 8.50
Stove Plate Scrap gross ton 5.00
Burnt Iron # gross ton 3.00

The condition of the export petroleum trade appears to be very active, judging by the following item extracted trom a Philadelphia journal of last week: "A river of petroleum is now rushing from the oil country through the pipe lines to Philadelphia to load the largest fleet of bulk oil vessels that has ever been at that port at any one time. At least 15 000 000 gallons of crude and refined petroleum will be required to fill the orders now on hand for this particular class of vessels. There are twelve bulk ateamships and two barks loading petroleum in Phila-

		Single, Per 50 feet				le. Per 5	0 fect.
Sizes. 6 x 8 to 10 x 15 11 x 14 to 16 x 24 15 x 22 to 20 x 30 15 x 36 to 24 x 30 26 x 28 10 24 x 36	1st \$6.50 7.50 10,59 11.50	2d \$6,00 6,75 9,50 10.00	3d \$5,75 6.50 9.00 9.25 9.50	4th \$5,50 6 00 8 25	1st \$9 00 10.25 14.00 15 25 16.00	2d \$5,00 9,25 12 75 13 75 14,50	3d \$7.75 9.00 12.00 12.25 13.25
26 x 34 to 26 x 44. 26 x 46 to 30 x 50. 30 x 52 to 50 x 54 30 x 56 to 34 x 56 31 x 58 to 54 x 69 36 x 60 to 40 x 60	12,75 15 00 15,50 16,50 17 25	11.75 13.50 13.75 14.75 15.75 16.75	10 25 12 09 12 25 13 50 14,50 15 75		17,25 19,75 20,50 21,50 22,75 25,50	15 50 18 00 18,50 19 75 21,25 23,00	14 00 16 00 16,50 18,00 20 00 22,00

Sizes above -810 per box extra for every 5 inches.

An additional 10 per cent, will be charged for all Glass more than 40 inches wide. All sizes over 52 inches in length, and not making more than 81 united inches, will be charged in the 84 united inches bracket.

Old Rags, Paper, &c.—Pices paid by dealers, New York delivery, are quoted as follows:

No. 1 White Rags *	Ъ	3	04	31/4
No. 2 White Rage 19	11	178	(C)	2 9
Mixed Rags				
Blues and 3ds	IP	1	@	1140
Hard Sized White Shavings	D.	214	$\alpha$	51.36
No.1 White Book Snavings #				
No.2 White Book Shavings₩	IP	11/8	Œ	1746

delphia on foreign account. The average cargo of a modern bulk cartier is 1,500,000 gallons. There are also large sailing vessels carrying oil which are principally owned in France. The shipments from the Phi adelphia ports during the past week aggregated 5,075,008 gallons. The total shipments since January 1 have been 223,861,151 gallons.

It is believed that this year's shipments will be the largest ever known in the history of this port."

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CONTENTS.	
Editorials: PAG	E.
	45 45
Heating Passenger Steamers The Supply of Black Plates for Tinning.	
	45
improving manneacturing a material	45
The Letter Box—	46
A Tin Roof Problem	46
Copper Smoke Pipe	46
Size of a Gallon	46
Water Lime	46 46
Water Back Overtaxed. Illustrated  Repairing Granite Ware	47
Sims' Patent Gutter	47
Hot Water Backs Into Supply. Ilius	47
Boss Squaring Shear. Illustrated	48
Rock Wool Sectional Covering, Illus Burning Gas	48 48
The Retail Store—	,,
The Mossberg Wreneb. Illustrated	49
The Service Stropping Machine. Illus.	49
The Favorite Curling Iron. Illus	49
The Wernicke System of Hardware Shelving, Illustrated	50
Adjustable Lamp Frame. Illustrated.	E()
Aluminum Ware	60
Revolving Search Light. Illustrated	51
Extension Fire Guard Arm Illus New Era Axle Sash Pulley, Illustrated,	51 51
Empire Stencii Dauber. Illustrated	51
Memoranda	51
The Perfection Vegetable Slicer. Illus.	51
The Duplex Hot Blast Blow Pipe. Ilius.	52 52
Thin Films of Gold Plumbing and Gas Fitting—	0.
	53
Observance of Plumbing Law	53
The Montgomery High Pressure Ball	
Cock. Illustrated Vermont Master Plumbers	63
Plumbers' Banquet at Salem, Mass	
Water Closet Pull. Hlustrated	54
Traps and Vents	55
Flashings	55
Tin Plates— Philadelphia Tin Plate Trade	56
Welsh and American Wages	56
Tin Plate Wages	56
Serap	56
List of American Manufacturers of Tin and Terne Plates and Their Brands	57
Trade Notes	18
Steam and Hot Water-	
Compound Radiator Valve. Ilius	59
Heating Notes	59
Contracts	60
The Biss Friction Clutch Pulley. Illus	60
Stove Trade Notes—	
Gas as a Fuel	61
Onk Gariand Stoves	61
Trade Report—	
The Iron Market	64
Metal Market	61
Chicago Report Trade	65 65
Condition of the Hardware Trade  Notes on Pricea	65
Metal and Miscellaneous Prices	67
Fabor Crobones -	

Labor Exchange-

Help Wanted....... Situations Wanted ...

# THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, October 13, 1894.

DAVID WILLIAMS,

**PUBLISHER** 

### BUSINESS OFFICES:

NEW YORK	
PHILADELPHIA	220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBUROH	Room 509 Hamilton Building.
CHICAGO59	Dearborn Street, cor. Randolph.
CINCINNATI	Rooms 22-24 Pickering Building.
ST. LOUIS	Bank of Commerce Building.
CLEVELAND	

DRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

### Theater Ventilation.

Notwithstanding the present demand for improved ventilation in our halls of assembly and amusements, there still exists a lack of appreciation of the diffienlties attending the proper installation of a system for this purpose. As a rule, the cubic space per occupant is less in a theater or hall than in any other ordinary apartment, while its complete inclosure, the usual absence of windows, the arrangement of balconies and galleries are all against the adoption of the same methods that may be employed in the school house. In the latter, with its exposed walt and window surface, the air becomes cooled in transit and may therefore be widely admitted above wood base in the warm inner wall and thence allowed to pass to the cold outer wall. where it becomes slightly cooled and falling returns to the inner wall and escapes by a vent register at the floor. In the theater, however, the air is almost certain to be warmed in transit. The animal heat of the occupants. supplemented by the thorough heat insulation of the walls, is usually sufficient to raise to a considerable degree the temperature of the air within the room unless it be frequently renewed by the admission of cold, fresh air. If this air be admitted through the side walls, thorough distribution is almost an impossibility, and there is therefore presented for the purpose of air admission only the floor and the ceiling. The former is the better and simpler as regards mere coincidence of natural currents due to the animal heating of the entering air and of the general direction of the air movement from the floor upward.

Methods of Supply.

Ventilation to be satisfactory must be imperceptible in its manner of accomplishment, but evident in its results. The difficulty of introducing through the floor of a theater a sufficient volume of air to meet all the requirements of successful ventilation. and yet without producing objectionable drafts, can best be shown by conconsidering an auditorium seating 2000 persons. At 30 cubic feet per minute per person there will be required a total volume of no less than 60,000 cubic feet of air per minute. It is extremely difficult to admit this volume through the floor without some currents passing directly from the entrance openings toward the persons of the occupants. At all events it is unwise to figure on a velocity through inlet openings exceeding 100 feet per minute. Obviously, to secure this velocity with the above named volume there will be required an aggregate area of opening equal to 600 square feer. This can only be secured by almost a complete honeycombing of the floor. The most common method consists in perforating the risers of the amphitheater steps upon which the chairs of a theater are usually placed, or even making the entire face of such risers of wire netting or register facing. the air being admitted to them from a plenum chamber beneath the auditoriumfloor. Admission through specially constructed chair legs, through nosings along the steps or through numerous specially constructed downward deflecting outlet pieces, have all been tried and with varying success. The imperceptibility of the current of air admitted depends not only upon its velocity but also to a large degree upon its temperature. The necessity of supplying the air at a temperature slightly less than that desired within the theater, in order to allow for its heating by the persons of the occupants, is largely the cause of failure in some otherwise perfectly planned systems of floor supply. A radical departure from this method consists in admitting all the air through a perforated ceiling and removing at the floor through openings similar in arrangement to those provided for floor admission. With ceiling supply the direction of movement of the air volume is directly opposed to that naturally taken by it, due to its being warmed in transit, and consequently mechanical means are required to compel it to pass downward. In fact, to insure its removal through the desired channels an exhaust as well as a supply fan is necessary.

The Welsh Tin Plate Situation.

The tone of the Eoglish trade press indicates that the prospect of external competition is drawing the whole of the Welsh tin plate manufacturers and workmen into "closer and better working terms." The tidings of large new tin plate plants building or projected on this side of the Atlantic, and of extensive preparations now being made for enlarging the American tin plate production, are undeabtedly causing a good deal of apprehension in the minds of the Welshmen, who expected a totally different result to follow on the passage of the new tariff law. Instead of imposing a check on the rival industry in America, they note that the Wilson law is apparently stimulating it. The London Engineer thinks that the position of the Welsh tin plate makers under the circumstances is not encouraging. Other papers foresee a probable necessity for cutting wages in order to meet the competition of the American works, and in this case advise the tin plate workers to be reasonable and cheerfully consent to bear their share of the burden. For the moment, however, the Welsh workers are having a little "boom" after their long spell of inaction, and the exports of tin plates from the shipping ports are in excess of deliveries from the works, a condition that has not prevailed for many months past. Several works have started up again in the last three or four weeks, and it is even reported that a new steel works is about to be built at Llanelly, the center of the trade, to supply bars to the tin plate makers.

A compilation of the daily reports of fire losses in the United States and Canada, received by the Journal of Commerce during the month of September, shows a total of \$10,149,000, a little less than the figures for September, 1893. The losses for the first nine months of this year are calculated to have been \$97,602,000, against \$121,832,700 in the same period last year. A considerable proportion of last months losses were due to the destructive forest fires in Minnesota and Wisconsin. Otherwise the exhibit would have maintained the ratio of decrease which has marked all the months of the current year as compared with last year.

The Cincinnati Commercial Gazette of September 30, in reviewing the local labor situation at the close of the month, remarks as follows: "A careful résumé of the condition of the labor situation locally admits of the belief that at no time during the past year have the conditions been more favorable and the indications for a general improvement in the immediate future better than at the present time. The ranks of the unemployed are gradually but surely being reduced, and a most thorough investi-gation fails to reveal the fact that thereis, at present, any severe suffering from lack of work, though there are still many persons throughout the city who are still out of work. Reports from a number of mills and factories of different kinds indicate that the working forces in many will soon be increased. and there is a general feeling of hopefulness.

# THE TIN SHOP.

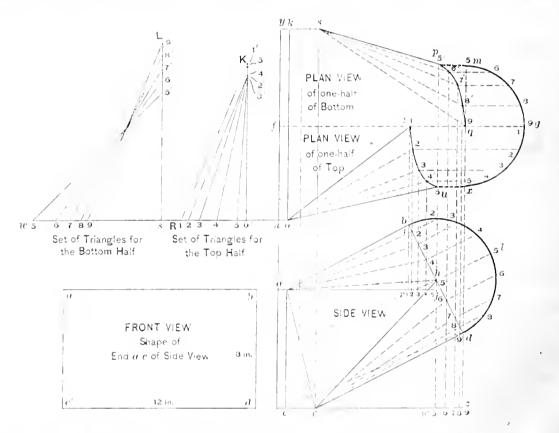
Pattern for Article Rectangular at One End and Round at the Other.

From Subscriber, Philadelphia.—Please publish in The Metal Worker a method for obtaining the patterns for a tapering article rectangular at one end and round at the other. The two ends are to be at an angle to each other when the article is placed in position.

Answer.—In Fig. 1 let a' b' c' d' represent the front view of rectangular opening and a b d e c the side of article

lines in the direction of tu and pm. On ca extended, as ok, set off the distance a'b' of front view, and add the part indicated by ny. Bisect ok in f, and erect the perpendicular fg. With point g as center, and hb of side view as radius, strike the semicircle mgx, divide it into eight equal parts, and from the points thus obtained drop perpendiculars through mx, cutting lines of similar number drawn through bd. From the points of intersection in tu draw lines to o, and draw tu. In

the triangles required for the top part, as shown in RO'K, Flg. 1, proceed as follows: Draw the right angle RO'K, and from O' on O'R set off the length of lines in bhjv of side view, as indicated by the small figures. From O' on O'K, set off the length of lines in bhjv of plan of top, also as indicated by the small figures. Connect the points in O'R with those of similar number in O'K, as shown. To obtain the triangles required for the bottom part, proceed in a similar manner. Draw the right



Pattern for an Article Rectangular at One End and Round at the Other.—Fig. 1.—Plan, Front and Side Views for which Patterns are Wanted.

for which patterns are required. The half profile of round top is represented by b l d. To obtain the necessary messuring lines for describing the patterns, a half plan of top and bottom and two sets of triangles are required, to secure which proceed as follows: Extend a' b' and c' d', as shown by a i and c z; also divide hld into any convenient number of equal parts, in the present instance eight. From the points thus obtained drop lines cutting b d perpendicular to same. From the points in b d draw lines to points a and e. With the Tsquare placed at right angles to c z, and brought successively against the points in b d, drop lines cutting c z and a j, as shown. For convenience extend these

a similar manner draw lines from the points of intersection in p q to s, and draw p q.

We have thus secured in f t u n the plan view of one-half of top, and in y p q f the plan view of one half of bottom. Then the lines in o t u of plan give the altitudes and lines in b h j v of side view give the bases of triangles for obtaining the pattern of top part. Also, the lines in s p q of plan give the altitudes and the lines in h d z w of side view give the bases of triangles for obtaining the pattern of bottom part. The hypotenuses of these triangles will give the distances between points shown in plan by o t u and s p q as if measured on the finished article. To obtain

angle W S' L. From S on S' W set off the length of lines in h d z w of side view, as indicated by the small figures. From S' on S' L set off the length of lines in s p q of plan of top, also as indicated by the small figures. Connect the points in S' W with those of similar number in S' L, as shown.

For the pattern shown in Fig. 2 proceed as follows: Draw the line O O', in length equal to a'b' of front view, or ok of plan. Bisect O O' in C, and erect the perpendicular C D, in length equal to ab of side view, and draw O D, D O'. These lines are equal in length to R K of first diagram of triangles. With O of pattern as center, and 2 2 in R O K as radius, describe a

small arc, 2', which intersect with one struck from point D of pattern as center, and b 2 in b l of profile as radius, thus establishing point 2' of pattern. Proceed in this manner, using the length of lines in R O' K for distances from O' of pattern, and the stretchout between points in b l of profile of side view for the distance between points in D G of pattern; then draw D G', G' O'. With point G' of pattern as center, and 5 5' in W S' L of triangles as radius, strike a small arc, E', which intersect with one struck from point O' of pattern as center and a e of side view as radius, thus establishing point E' of pattern. Draw G' E', E' O'. With point E' of pattern as center, and 6 6' of triangle in W S' L as radius, strike a small arc, 6', which intersect with one struck from point G' of pattern as center and 16 of profile as radius, thus establishing point 6' of pattern. Proceed in this

The Baron De Hirsch Trade School.

The committee of the Baron De Hirsch Trade School, established at 225 East Ninth street, New York, to which we have referred on previous occasions, have caused a reorganization of that institution. They have introduced fresh blood into the management and a new system of instruction, with the view of improving the efficiency of the school. The school course, which was formerly an indefinite oncits duration depending for each individual student on the amount of progress made by him-has now been limited to a regular course lasting six months. The evening classes have been abandoned and all the energies of the school have been confined to 'the day classes. The class rooms have also been rearranged and enlarged. The machine shop, the carpentry and wood turning shop and the plumbing shop, which were formerly much cramped for room, each now occupies a whole floor of the building, giving them much better accommodations and more light and air. The

The classes are held on five days of the week. Saturday being the Hebrew sabbath, no work is done on that day. The hours of session are from 8 a.m. to 6 p.m. Trade instruction is given until 4 p.m., and during the last two hours the scholars of each class are taught English—of which language they are ou joining the school entirely ignorant — and michanical drawing. Once a week the instructors give a lecture to their pupils bearing on the trade they are learning.

The plumbing class room, which occupies the whole of the third floor of the building, is well furnished with the necessary appliances. Each pupil has his own kit of tools and a drawer in which to keep them, a gas soldering furnace, pipe holder, &c. Accommodation is provided for 25 boys. The class is under the direction of George F. Helbig, a practical plumber of Hebrew birth, who has had considerable experience in the trade in this city. The superintendent of the school is George Ernest Yalden, a mechnical engineer, who is assisted by Louis

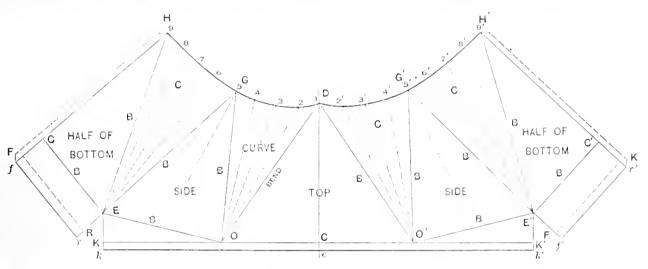


Fig. 2.—Development of the Complete Pattern for an Envelope of a Pipe as Shown by the Front and Side Views of Fig. 1.

manner, using the length of lines in W S' L as distance from E' of pattern, and the stretchout between points in l d of profile of side view for the distance between points in G' H' of pattern, and draw G' H', H' E'. With point H of pattern as center, and ed of side view as radius, strike a small arc, C', which intersect with one struck from point E' of pattern as center and n f of plan, or CO of pattern, as radius, thus establishing point C' of pattern; then draw H' C', C' E'. From E' and C' erect the perpendiculars E' F', C' R', in length equal to ce of side view, and draw F' R'. From F' and R' set off the distance no of plan and draw f' r'. With O' of pattern as center, and a c of side view as radius, strike a small arc, which intersect with one struck from E' of pattern as center and e c of side view as radius, thus establishing point K' of pattern, and draw O' K' E'. From K' of pattern set off the distance  $\mathbf{F}'$  f', and draw k' c' parallel with K' C'. Then D G' H' r' f' k' c' represents the half pattern of article. The other half can be obtained in the same manner or by duplication, as may be found convenient.

class in painting has been provided for in an adjacent building. The committee have also expended considerable money in new machinery and appliances, so that the scholars have every facility for learning their respective trades under the most favorable conditions.

The school is a free one founded by Baron De Hirsch for the young Russian and Polish Jews who come to the United States without a trade on which to rely, and it has already proved of great assistance to this class of people. Just at present, owing to the lessened emigration of the past 12 months, the classes are not as well filled as they might be, but it is expected that additional scholars will present themselves after the current term.

The course, under the new régime, began September 1, and will last until the end of February, when another six months' course will be commenced. At the end of the course the scholars will be examined by committees from the different trade organizations, as is the case in the New York Trades School. They will be granted certificates of proficiency accordingly. The system of instruction followed is molded on the pattern of that established in the New York Trades School. When the scholars are graduated, they are presented with a kit of tools, and every effort is made by the school authorities to place them in situations where they can immediately begin to earn their living.

Wasself, a graduate of the Hebrew Technical Institute.

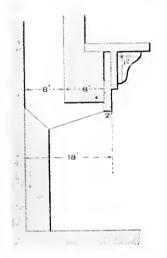
Preparation of Chromium. - From some new researches of Henri Moissan upon chromium, it results that through the use of the intense heat produced by the electric arc it is possible to prepare fused chromium in very large quantities. The product may be refined either by fused lime or by the double oxide of calcium and chromlum. The metal obtained under such circumstances is less fusible than platinum. It may be filed, it takes a beautiful polish, and is not attacked by atmospheric It is attacked but slightly by agents. scids and resists aqua regia and alkalies in fusion. This preparation of chromium will permit of efficaciously studying the alloys of the metal. United either with aluminum or copper, it gives, in fact, some very interesting results. Pure copper, alloyed with 0.5 of chromlum, has its toughness nearly doubled, and the alloy, which is capable of taking a beautiful polish, alters less than copper does in contact with moist air.

The County Commissioners at Omaha, Neb., have agreed in a proposition to vote bonds to the smount of \$1,000,000 to aid in the construction of the projected Platte River Canal.

# THE LETTER BOX.

### A Smoky Fire Place.

From Edwin A. Jackson & Brother, New York City.—May we not offer some further suggestions on fire place construction? In The Metal Worker May 12 "J. A. S.," of Fairfield, lows, says that half the fire places of his town smoke. Fully one-half of the fire places in the whole country smoke badly. Now, as to the trouble with the one he illustrates and describes, we would say that in the first place the fire place does not have a separate flue. Very



A Smoky Fire Place.—Sectional View at Throat of Fire Place.

aeldom will a fire burn well where the flue does not run aeparate to the roof.

2. The flue, even though it were separate, is too small. It should be 8 x 8 inches at least.

3. The fire place is too far out, giving the flue too much slant, and therefore too much friction.

4. The throat is a long and tapering one, and is not shaped as it should be. This point was commented upon in answer to "F. A. F.," in The Metal Worker of April 7.

5. The grate does not fit the fire place. It is a mistake to have space between the brick work and the grate, as this causes eddies which check the draft and make the grate to smoke.

6. There is too much brick work over the front of the grate. You have here about 9 inches, and amoke atriking this curls out into the room. To remedy, or rather help, the matter, it is first necessary to build up the fire place to just fit the grate and cut the brick arch on a slant. It will, however, never work well with the fluc construction. Another mistake is the damper over the grate. It is better to have the grate open wide here, at least when a fire is first started.

The question of overhanging brick work is not well understood, and a writer is wrong here who says make your flue 8 x 8 inches or 8 x 12 inches and have a 4 inch wall on the front, incressing this to 8 inches around the fire place. What is the result? The depth of flue 8 inches plus the 8 inches of b.ick work plus about 2 inches for tilling gives 18 inches, as shown in the accom-

panying sketch. A grate seldom runs over 15 inches deep, and often not over 12. That requires 3 to 6 inch filling on the back of the grate, and over the grate we have 10 inches dead space and 2 to 5 inches of flue. Even where an 18-inch fire place is used we have 10 inches dead apace and 8-inch flue. Smoke striking this surface curls out into the room usually quite as much as into the flue. It is better to have only 4 inches of brick and 2 inches of tile, or a total depth of 14 inches, of which the greater part is open space—the fluc. Where 8 inches of brick is used be sure it is cut on a slant, running down to 4 inches or less.

### Carpenters' Gauge.

From I. D. A., Punxsatawney, Pa.— Every tinner has seen a carpenter hold his finger under his rule at 2 or 6 inches, as the case required, and lay it on a board with his pencil against the end and run a mark down the board to make a line to saw to when he wanted a strip. They have also seen him stop suddenly and pick a splinter out of his finger, and both have felt that there was an annoying risk attending the use of such a gauge. Here is a gauge that can be carried in the pocket, is safe, more true than the finger, and is something with which acraps of heavy the can be worked to a profitable advantage. To make it, take a piece of tin Action of Copper on Tin.

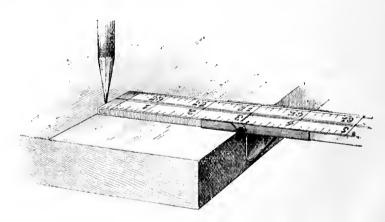
From "BILLY THE KID," Hebron, Neb.—Does the copper bottom on a wash boiler or coffee boiler make the tin body rust, or wear, out faster than if a tin bottom were used; if so, what is the cause?

Note.—There may be some difference in opinion as to whether the body wears out faster with a copper bottom than with a tin bottom. It is true, however, that electrical action will take place between the two metals under certain conditions, and if the tin coating on the iron is partially destroyed the iron will be esten away very quickly. It is not uncommon to find fine holes all around the bottom of a wash boiler with a copper bottom and the same is true of coffee boilers.

### Sims' Patent Gutter.

From J. D. A., Remington, Ind.—In answer to "W. J." of Ridgedale, Tenn., I would say that he can purchase Sims' patent gutter from Rhodes, Dickelman & Co., Forest, Ohio.

The Twin City fron Works of Minneapolis, Minn., have recently begun the manufacture of a fire proof door for use in warehouses and other buildings, for the Fire Proof Door Company of that city, who own the patents. It was



Carpenters' Gauge.

2 inches long and 1\s\s\ inches wide. Turn up an edge at a right angle on each side and \s\s\ inch high. In one edge cut a triangular notch, as at A, \s\ inch from the end. On the under side, just even with the upright line of the notch A, tolder firmly a stop 1 inch wide, letting it run down atraight \s\s\ inch; then turn the end back for a brace and solder fast. In use, a rule is placed between the edgea, with the desired measure even with the notch and held in place with the thumb, while the fingers of the left hand grasp the gauge and the rule firmly. The right hand holds a pencil at the end of the rule and a true mark can be made on rough timber with safety, as can readily be seen from the cut. The cost is so little that they can be sold for a dime with a good profit.

necessary to build hydraulic machinery for the purpose, but the company proved equal to the emergency and erected a press of large size, capable of exerting a pressure of 4000 pounds to the square inch, and weighing 26 tons. The door is composed of two sheets of ateel or copper, as may be desired, which are pressed into panel form to conform with any design specified. These sheets are fitted over a wood frame and the inside filled with mineral wool, making them perfectly fire proof. The frame is grooved and the steel pressed into the groove, and it is then fitted with a steel band which extends all around the door, making it perfectly atrong and rigid. These doors can be finished up in nickel, copper, brass or bronze. The casings are made with the same protection.

# PLUMBING and GAS FITTING.

### Plumbers and the Health Association.

In a paper read by President John Mitchell of the National Association of Master Plumbers, before the Twentysecond Annual Convention of the American Public Health Association, at Montreal, Canada, on September 25-28 of

the present year, he said :

Having been delegated to represent the National Association of Master Plumbers at your convention, I deem it essential to summarily outline its history, the demand for the reform it has materially assisted in inaugurating, a reiteration of its objects as relating to public health, and the results achieved. In our success we are indebted to many of your members, some of whom are

doubtless present.

Through the associated efforts of progressive men of the craft our associprogressive men of the craft our association was organized twelve years ago.

Annual conventions, composed of delegates from filial local associations, have been held regularly, at which papers have been presented and discussions entered into which have proven very helpful to the trade, and, resulting in better work, have been beneficial to the

public and a monument to our efforts.

Our constitution reads: "This association is organized for sanitary, commercial and social purposes and has for its special object the advancement of the trade in all the latest discoveries of science appertaining to sanitary laws. Having made this public declaration it behooved us to acquaint ourselves with the principles of sanitation and the best methods of construction to attain the goal. This meant a higher education

of the craft.

### Present vs. the Past.

The task of arousing the dormant energies and encouraging the pro-ficiency of all members of the craft, both in and out of the association, was a herculean undertaking; but a com-parison of the present beautiful sanitary bath room with the not very ancient outhouse, wash bowl and pitcher, demonstrates our phenomenal success.
The plumbing of a house is now one of the most important branches of the building trade. The transition from the insalutary pan closet and other crude fixtures, the chaotic arrangement of pipes, to the handsome lavatory, closet and bath, and the systematic arrangement of pipes, traps and vents, has made it feasible and absolutely safe to place any fixture in a sleeping apart-ment without danger of the exhalation of mephitic fumes.

It is utterly useless for me to attempt to discuss with you learned gentlemen the septic influence of sulphurated hy-drogen, sulphide of ammonium and organic matter, commonly known as aewer gas, as a ready conveyer of the materies morbi, or cite cases of the ravages of medieval pestilences and mortality statistics to convince you of what, to me, is obviously apparent, that a akillfully executed and scientifically planned drainage system, to carry off sewage and prevent the pollution of the

atmosphere by noxious effluvium, is a paramount requisite to health. As physicians your efforts are mainly directed to the cure of disease, while ours is that of prevention. Your knowledge is obtained from books couched in technicology, scientific diagnosis and hospital practice. Our knowledge is obtained through an apprenticeship, averaging live years, first carrying the kit, furnace and coil of lead pipe all at once, and later, if we are worthy our vection, a systematic study of mathematics, mechanical drawing, chemistry and hydraulics. A plumber should not only be able to wipe in a trap, but, if it siphons, explain why; for we are practical plumbers and sanitarians only so far as our knowledge of the above extends.

### Do Good Work,

There are some owners and contractors who desire and are only willing to pay for a chesp class of work, making it almost impossible for the conscientious plumber to live and execute sanitary work, which is the pride of all. That there are a few mercenary tenement owners and plumbers who heaitancy in subjecting have no others, perhaps ignorantly, to typhus, diphtheria, cholers, pulmonary phthisis by the construction of defective house drains, which afford a congenial nidus for the germs of these maladies, is to be regretted. Without legislation to put a sudden quietus upon the open disregard of hygienic laws complete safety cannot be obtained. With the continued co operation of your members, national sanitary legislation is assured, but the delay and the resultant effects imperil more lives than the ab-sence or disregard of the laws regulating the handling of poisoned drugs by the incompetent druggist or his ignorant The trite maxim that "an ounce of prevention is worth a pound of cure, is universally recognized but too often overlooked by the householder, who, after the triumphant entry of the insidious foe, the direct cause being his ignorant or criminal neglect, has lost the life of a loved one, finds, too late, that he has maliciously directed his shafts of alleged wit to the honest "plumber's bill."

### Object Lessons.

Notwithstanding the frightful object lessons inculcated by vicious ventilation and pestiferous sewer gas, people are slow in demanding a cessation. They look to Boards of Health and the honest work of the plumber for protection against the Protean enemies of health; for our errors of commission or omission we are morally amenable.

As early as 1886 the master plumbers of Maryland drafted and secured the passage of a law providing for a State Board of Commissioners of Practical Plumbing, consisting of three practical plumbers, a member of the State Board of Health, also a member of the Board of Health, also a member of the Board of Health of the City of Baltimore, appointed biennnially by the Governor, to examine all engaged in the business of plumbing and issue certificates of competency. Any one found conduct-

ing said business without a certificate was subject to a fine of \$50 for each The law had been in vogue but a short time before an incompetent and unlicensed plumber appealed to the courts, claiming that under the cou-stitution he had been deprived of his means of livelihood. The High Appellate Court of Maryland declared that if any calling was of such a character as to require a special course of training or experience to pursue it with safety to the public, it was eminently proper for the Legislature to restrict it.

### Legistative Enactments.

The Legislature of New York enacted a law in 1892 to provide for an examination to determine the fitness of all plumbers in the business. Massachusetts passed a similar statute in 1893.
The Honorable Board of Commissionera of the District of Columbia has passed regulations governing plumbing.

It is complimentary to sanitary science that nearly every city in the United States has ordinances regulating the proper running of supply and ventllation pipes, the separate trapping of each fixture, the abolition of the cesspool, &c. The paramount right of such ordinances rests upon the well recognized maxim, "Salus populi est suprema lex" (the health of the people is the

first law).

It is not necessary to delay action to ascertain whether the plumbing in a building is in proper condition until crape is hung on the door. Annual or semi-annual inspection of old and new buildings should be made compulsory. An advance along this line has been consummated in Chicago, where a semi-annual inspection of all buildings is made under the supervision of the De-

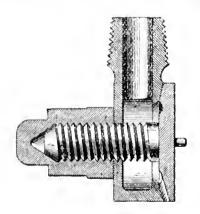
partment of Health and Drainage.

The sanitarians of Ohlo, Rhode
Island, New Hampshire and Texas, as
well as other States, are working for the passage of sanitary laws. The National Association of Master Plumbers extends thanks to many of your members for past assistance in this com-mendable work, and now urges that your association, interested in this momentous question, stamp its approval on the work and, if consistent, pass a resolution urging your members to exert themselves to the end that pure air and pure water may abound in every

A NEW MANUFACTURING COMPANY IS to be organized at Springfield, Mass., to be called the Hercules Float Works, which will be composed of Henry S. Anderson, manager of the United Elec-tric Light Company; Frank Engelhard, superintendent of the plating depart-ment of the Springfield Brass Company, and others. The work done will be ex-perimental at first, but floats of all kinds will be made, such as are used in steam traps. The floats will be of copper and they are to be manufactured by new electro process which has never been tried before. The rooms of the firm will be located at 54 Taylor atreet, where the machinery is now being set up as fast as possible.

### A Clean Out Urinal Spray.

To obviate the frequent stoppage in the flow of water from the pipes supplying alab urinal stalls, owing to the collection of dirt or sediment around the small holes bored in the pipes, Savill, Walls & Co., 1229 and 1231 Budden street, Philadelphia, Pa., have introduced the clean out urinal spray here shown. It is simple in design and said to be exceedingly effective in use. Fig. 1 shows a sectional view of the device, which is made of brass. It consists of three pieces-viz., a hollow or chambered center piece, or body, with a nipple at its upper end for connection to a tee in the supply pipe, and having a concaved face on one side, with grooves on the lower edges radially disposed, and two guide pins extending from the outer edges of the face; a cap or circular plate at the end of a screwed stem or spindle, the inner face of the cap being convexed and grooved to register with the body face, and having two holes for the guide pins in the body face, and a nut or bonnet squared for use with a wrench. When connected to the under side of a supply plpe with the nut or bonnet outward the water flows directly to the channels formed by the grooves, and is discharged through same in the shape of jets at an angle sufficient to cause a thorough wash of the face of the slab. When one or more of the apertures become choked with sediment it is simply necessary to loosen the nut or bonnet, when the pressure of water acting against the face cap will force the cap away from the body so as to separate the grooves forming the jet sperture and quickly remove the dirt. The nut is then tightened and



Clean Out Urinal Spray.—Fig. 1.—Sectional View.

the perfect flow of water continues. As has been seen, the spray is essily kept in an efficient condition, with the result that the whole surface of the urinal slab is at all times in a clean and wholesome condition.

Fig. 2 shows a urinal fitted with the spray and also with an or dinary pipe. The spray is the invention of Joseph H. Savill, who has made application for patent protection, and it will, no doubt, to a large extent supersede the perforated pipe so commonly used, and which is so troublesome to keep clean.

Joun McCart died last week at his home, 703 Dolphin street, Baltimore, Md., after an illness of six weeks with Bright's disease. Mr. McCart was born in Ireland in 1828. His parents brought him to this country when he was two years old. He was educated in Baltimore, where the family settled. In 1854

he began the plumbing business at the corner of St. Paul and Centre streets, where he continued it until his last illness. His plumbing work is seen in the Maryland penitentiary, city jail and other large buildings.

# An Eel in the Corporation Tap.

Some idea of the pleasure attached to the plumbing business can be gained from a description of what was recently necesthe tap was removed; and as there was a heavy pressure, considerable water escaped before the plug could be inserted in the hole. The tap, it was found, when loosened, had been forced out by the water and thrown up the trench, and to it was attached an eel 1 inch in diameter and 15 inches long. The eel, it appears, had been forced into the cock some 3 inches, and the head and body reduced to a diameter of  $\frac{1}{2}$  linch for this length, while the other portion was considerably swelled, although it had evidently not been confined in its nar-

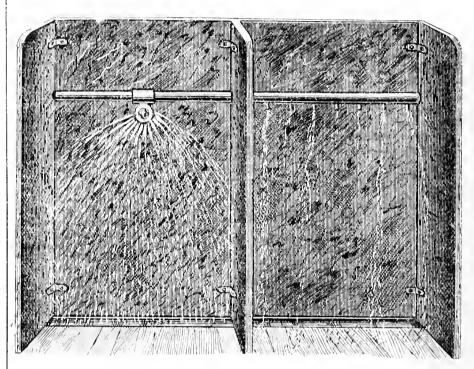


Fig. 2.-View of Urinal Fitted with the Spray and with Ordinary Pipe.

sary to open up the water supply in the house of one of the customers of Boyd & Schnaier, 277 Columbus avenue, New York. On being notified of the stop-page of the water supply the building On being notified of the stopwas visited, and on tracing along the water supply pipe and closing the stop cock on the service, it was found that the trouble was on the street side of the cock. By driving a nail in the pipe, on the street side of the stop, there was no flow of water, and to com plete the investigation it was necessary to dig a trench in the street for the purpose of examining the pipe. It being evident that the trouble was between the nall hole previously made and the street main proper, the pipe was cut away from the corporation tap and an attempt made to remove the obstruction by the sid of a piece of wire.

The wire, however, would penetrate the obstruction, though the water was held in check. The presence of blood held in check. The presence of blood on the wire after removal led to the supposition that the trouble was caused by a small fish or eel imprisoned in the pipe. On closely examining the tap it was found that the hole in the street main was somewhat enlarged by corrosion, and that the tap was also somewhat esten away. Preparations were then made to remove the tap. A piece of tough wood was shaved to the same size and diameter as the tap, and a soldering copper and furnace put in readiness to increase the size of the tap by tinning after it was removed so that when reinserted in the hole a close connection would be made. After these preparations were completed and the plumber clothed in an oil cloth suit, row quarters for any length of time. By the use of force the eel was detached and the cock filed bright and tinned, and, as anticipated, it was found to be somewhat reduced in size at the point where it entered the main.

After shutting off the cock the task of getting the tap into the main was begun. The plumber stood to one side of the opening, so that when the plug was loosened there would be no danger of its being thrown violently against his body by the torce of the water. To find the hole and insert the tap with a spray of water covering a considerable space was no easy task, and when found some strength was required to hold the tap until it could be driven in with a hammer. This being effected and the service pipe repaired, the necessary joints were wiped and the job was complete. The eel has been preserved in alcohol in a glass jar, and is kept on exhibition in the show window of the plumbers.

### TRAPS AND VENTS.

THE BOARD OF HEALTH OF TROY, N. Y., have passed a resolution permitting the use of any good anti-siphon trap. Michael J. Whelan has been appointed assistant plumbing inspector.

W. F. DONNELLY has opened a plumbing shop in Plummer's Block, corner of Ash and Auburn streets, Auburndale, Mass.

THE FIRM of Wyman & Tallman, plumbers and house furnishers, on Main street, Nyack, N. Y., were dissolved last week by mutual consent. George

W. Tallman retired on account of ill health. George Wyman will continue the business.

WILLIAM O'LEARY has moved his plumbing establishment from 83 M:. Auburn street to 26 Boylston street, Cambridge, Mass.

AN AGREEMENT has been made at Boaton, Mass, that eight hours shall constitute a day for a plumber and the pay shall be \$3.75.

JAMES BARRETT has severed his connection as toreman of W. H. Hell's plumbing department and has opened a tinsmith and plumbing establishment on his own account in Haverhill, Mass.

GEO. E. WARING, New York, engineer in charge of the reconstruction of the drainage in the Capitol Building, at Washington, D. C., recorts the work completed at a cost of \$25,932. It included practically the construction of an entirely new system of waste pipes and fixtures throughout the building.

THE ELLIS & COOGAN COMPANY, plumbers, of Milwaukee, have fited articles of incorporation in the office of the Secretary of State. The capital stock is \$20,000 and the incorporators are Joseph Etlis, Richard Coogan and F. B. Grasp.

James Monyon, the plumber and tinsmith, has opened a repair shop at 54 Cavanaugh's lane, Woonsocket, R I.

IT HAS BEEN DECIDED by the city suthorities of Chicago that a plumber with more than one place of business needs only one license.

WALLACE BROS, plumbers, doing business at Evanston, Ill., made an assignment in the County Court on the 31 inst. in favor of William A Ratcliffe. Assets, \$3300; liabilities, \$5197.

As the season approaches when the gas is lighted earlier in the day the Union National Gas Saving Company, 744 Broadway, New York, find an increased demand for their National automatic gas saving governors. They issue a pamphlet describing the operation and use of these goods, besides presenting testimonishs from a large number of stores, factories and residences in which their governors have made perceptible reductions in the gas bills, while at the same time aiding in the maintenance of a steady and brilliant light.

ON FRIDAY MOHT of last week the plumbers of Monmouth County, N. J., assembled at the call of President Mc-Leod at one of the famous hostelries of Long Branch, N. J. An elaborate menu was served in courses, which was attended with interest by the guests, while harmony and good fellowship prevailed. After the banquet speeches were made by State Vice President John Highman of Patentan in which he are Hickman of Paterson, in which he re-joiced at the burisl of all enmity between plumbers and such evidences of good feeling. Secretary J. T. McNab good feeling. Secretary J. T. McNab of the Master Plumbers' Association of Paterson followed in the style peculiarly his own and equally entertaining. Ex-Secretary Don of the Master Piumbers' Association of Newark also entertained the guests. Those who know of his energetic work for the benefit of the association were surprised at his oratorical abilities. J. M. Heatherton, Jr., responded to the toast of "The Press" with the same success with which the press captivates all who are within its reach. After these sages had addressed the guests the wits assumed control and laughter prevailed.

The nusiness heretofore conducted in plumbers' and gas and steam fitters' supplies by James B. Clow & Son of Chicago is to be transferred to a corporation named James B. Clow & Sons, with an authorized capital stock of \$250,000. The license of incorporation was taken out on the 4th inst, by James B. Clow, Will E. Clow and James M. Johnson.

THE C. W. WILLIAMS COMPANY, Concord, N. H., plumbers steam and gas fitters, with a capital of \$4100, have been incorporated under the general laws.

THE MASTER PLUMBERS' ASSOCIATION of Fall River, Mass., held a regular meeting last week and installed the recently elected officers of the organization. It was voted to give \$100 to the Associated Charities of this city. After the meeting there was a social session, during which an excellent collation was served.

Among the items of work of the plumoing inspectors given in the report of Inspector D. J. McKeough, Utica, N. Y., are the following showing something of the calls that have to be attended to: Permits issued for sewer connections, 214; connections made. 205; inspections made on sewers, 307; permits for water and gas, 38; specifications for plumbing work filed, 19; inspections on rough plumbing work, 93 (and work found defective on 11); number of reinspections and found remedied, 11; final inspections, 72 (found defective, 1); total number of inspections, 495; water closets put in, 89; baths, 16; wash basins, 19; sinks, 58.

On Monday night the classes of the New York Trades School will open for the season of 1894-5. The evening plumbing class is not as large this year as it was last, when it was necessary to induce a number of applicants to take instruction in some other trade. There are already 40 applications for the day plumbing class, which commences a month earlier this year, on December 3. Other classes that our readers will be interested in are the Steam and Hot Water Heating, and the Tinsmith, Roofing and Cornice work, both of which begin on January 2, 1895.

THE BROWNHILL COMPANY of 838 Broadway, New York, have recently fitted three of the fire department atations in New York City with their Perfect gas controllers and have also made a large shipment of these goods to South America.

James V. McGarver & Son, 1414 Race atreet, Philadelphia, Pa., have recently completed a very satisfactory water heating plant in the toilet and bath rooms of the Academy of Notre Dame, Philadelphia, using a No. 3 Douglass instantaneous water heater. This apparatus heats the water for two lavatories and two bathtubs. These fixtures are located in three different rooms where it was not convenient to get hot water from any other source.

ROACH & DELEHANTY, 906 Columbus avenue, New York, are installing urinals and a 22 foot aiphon range water closet in the achool at 179 East 124th street, and are also doing the plumbing in the large boarding stable at 101 Amaterdam avenue.

A PLUMBER'S LICENSE has been granted to Reilly & Mabee at Amsterdam, N. Y.

BOYD & SCHNAIER, 347 Columbus avenue, New York, are very busy doing plumbing repair as well as new work.

They are running 24 plumbers and a number of helpers and laborers at the present time.

THE EILIS & COOGAN COMPANY of Milwaukee have been incorporated, with a capital stock of \$20,000, to een luct a plumbing business. The incorporators are J seph Elus, R chard Coogan and F. B. Grasp.

Louis A. AND HARDLE C CORNELIUS doing bisiness as Cornelius Bros., at 120 West Like stree. Chicago, have made an assignment in favor of Charles II Ames as assignee. Assets and liabilities were estimated at \$18,000 each. The firm have been engaged in the manufacture of plumbers' specialties.

Carrying Electricity on the Person.

A correspondent, R. W. Hill of Manchester, England, sends to Industries and Iron an amusing letter respecting an el etrical means he has devisad as a defense against thefts from the person. After relating by what means he was bereaved of a valuable personal ornament Mr. Hill recoun's the measures he has sagaciously devised to meet any fu'ure contingencies of a like nature. "I rigged up," said he, "A small contact for my scarf pin, bought a tiny electric bell, made a double pocket accumulator and am now ready for any emergency. I may say I now carry about with me a whole electric museum. The source of electric energy is stored up in said secumulators, and I have made a contact for my watch. Thus if any attempt is made to extract it quietly the tell tale indicates the fact at once. The third item of my equipment is a tiny incandescent lamp concealed in a well finished artificial water proof flower pinned to my coat. The lamp is useful during a performance at a theater, when the light in the house is usually lowered, and when I may desire to look at the programme, &c. Another piece of apparatus, invaluable to an inveterate an inveterate amoker, as I am, consists of a very fine platinum coil placed in a cavity made of asbestos. By inclining the little glass tube the mercury in the same closes the circuit of my pocket battery, and I can thus light my cigar, &c., regardless of the westner. The entire museum weighs about 22 ounces, and the only bother is the recharging of the battery. The latest addition to my store is a hollow cane fitted with a tiny lamp provided with a small silvered reflector concealed in the knob. The hollow cane is sealed at the bottom by a rubber stopper, and the exclting fluid is a mixture of chromic and hydrochloric acids. The cell consists of an amalgamated zinc rod and a strip of platinum foil. This type of battery was used for Tissandier's 'Navi-gable' balloon. By inclining the cane the lamp is, of course, fed by an e'ectric current and gives a good light. Any intelligent person can rig up my portative museum in a few hours.

The vagaries of the contract system are well illustrated, says the London Plumber and Decorator, by tenders just received by the managers of the Central London School District for the painting of the Hanwell Paupers' School and the erection of two new gate posts. Of the 12 sent in, the highest tender for painting, the architect's estimate for which was \$3 360, was \$9,250, and the lowest, \$3,696; while for the erection of the posts the highest price quoted was \$223 and the lowest \$21.75.

# PLATES.

### A Unique Gateway.

We print herewith an illustration of a very unique piece of art in the way of oansmental tin work. The illustration represents an arch which was erected by the U. S. Iron & Tin Plate Mig. Company of Demmler Station, Pa., on the occasion of the centennial celebration of the city of Mckeesport, Pa. This arch was designed by C. M. Bart berger, architect, Pittsburgh, and erected by the McKeesport Hardware Company's corniee department, of which Mr. Steffy is superintendent. The extreme width of the arch is 28 feet; it is 32 feet high, and the gateway 14 feet wide. The eagle in the center between the battlements was made by Henry Adler of Pittsburgh, of the first tin plate that was made at the U.S. Iron & Tin Plate Works after the pas sage of the McKinley bill. This engle is a beautiful work of art. In 1892 it is a beautiful work of art. formed the center piece of the balcony above the speakers' platform at the National Republican Convention in Minneapolis, and in 1893 it adorned the exhibit of the Associated Tin Plate Manufacturers at the Columbian Exposition in Chicago, where it was adposition in Chicago, where it was admired by a large number of experts. The two side posts of the arch, each seven feet square, were adorned with fine portraits of Governors Pattison and McKinley, the honored guests upon this oceasion.

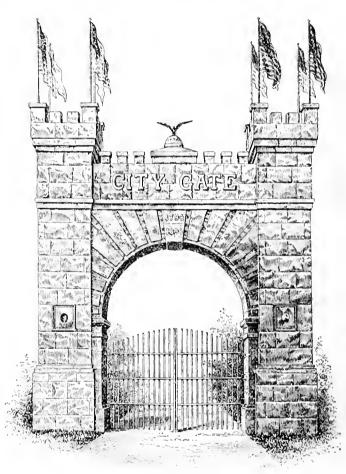
Occasion.

The occasion which induced the U. S. Iron & Tin Plate Mfg. Company to have this arch erected was a very significant one. In the first place the company felt the desire to show to their fellow citizens of the city of McKeespert that they possessed a patriotic interest in the affairs of the city, it having been frequently asserted that although the tin plate company was in the city of McKeesport the latter did not get due credit for having within its borders the pioneer tin plate works in the United States.

This arch was erected at the city line below the works, showing clearly that the boundaries of the city of McKees. port included the tin plate works and was called the "city gate." A very interesting ceremony took place at this point on September 13. The Gov-ernors of the State of Pennsylvania and the State of Ohio, together with other distinguished guests who had consented to participate in the celebra-tion on that day, and who had come from Pittsburgh to Demmler Station by special train, were, in accordance with the programme planned by the Centennial Committee, received at the city gate. On the arrival of the train at Demmler a mounted bugler, clad in continental uniform, announced by bugle sound the arrival of the guests. The gates, which were made of tin tubes, were closed, and the bugler, ad vancing, announced to the gate keeper, who was a'so dressed in ancient costume, that the guests had arrived. The Mayor of the city, Hon. Jas Z. Andre, who, with a deputation of McKeesport citizens, stood inside the gate, then ordered the gates to be opened, and while the band was playing "Hail to the

Chief." the Governors and their suites marched through and were received by the Mayor with an address of welcome, in which he pointed out the industries of McKeesport and especially greeted the Governor of Penusylvania as the chief executive of the State, and delivered to him, through the hands of his daughter, a badge in the shape of an ornamental key made from planished iron such as is manufactured by the W. Dewees Wood Company, stating that the planished iron key would fit the tin plate gate. He further pointed out that ernor McKinley with a very neat souvenir badge made of tin plate, the Mayor stating that as these gates had been opened that morning for the Governor of Ohio to pass through, so had he (McKinley) opened the gates for the tin plate industry to enter and become established in the United States.

After the Mayor's address of welcome the Governors and the other honored guests, among the number being Gen.
D. H. Hastings, Hon H. M. Jackson,
State Treasurer of Pennsylvania; Hon.
W. A. Sipe, Hon. W. A. Stone, Hon.



A Unique Gateway.

while at this end of the city was the gate on the line of the pioneer tin plate works of the United States, the opposite boundary of the city was formed by the large works of the W. Dewees Wood Company, the well-known makers of planished or Russian sheet iron, and that between these two works were the National Tube Works, the largest wrough troop pipe works in the United States together with rolling mills blast States, together with rolling mills, blast furnaces and Bessemer steel plants be-Sterling Steel Works, at which the fa-mous Wheeler-Sterling armor-piercing projectiles were manufactured.

The Mayor then requested the Governor to assume control of the city and also to give the freedom of the same to his brother Governor of Ohio. The Mayor's daughter then presented Gov-

C. L. Mageé, Adjt. Gen. W. L. Greenland, Judge J. F. W. White, Hon. John F. Dravo and a large number of John F. Dravo and a large number of McKeesport's and Pittsburgh's prominent citizens, under the gu'dance of the directors and officers of the company, inspected the U. S. Iron & Tin Plate Works, which were in full operation, and witnessed the process of operation, and witnessed the process of tin plate making from the raw steel bil-let to the finished plate. While the party inspected the tin plate depart-ment proper, Governor McKinley, upon the suggestion of foreman Purcell, dipped a plate with his own hands. It came out bright and handsome and was presented to Mrs. McKinley as a soupresented to Mrs. McKinley as a souvenir of the occasion.

After an hour profitably spent in this manner, the party proceeded to the private hotel of the U.S. Iron & Tin Plate Mfg. Company and partook of a luncheon, which was served by the ladies of the members of the company and at which the president of the com pany bade the guests the special welcome of the U.S. Iron & Tin Plate Mfg. Company, and thanked them for accepting the hospitality of plain American citizens.

After luncheon the party left Demmler Station by 'he special train, which stood in waiting, in the best of humor to participate in the further festivities of McKeesport's centennial celebration.

### SCRAP.

A DISPATCH to the Cincinnati Com-mercial Gazette from Elwood, Ind., states that the report that all the tin plate manufacturing plants in the United States closed down last week indefinitely, or until the wage question is settled, was false as far as the works of the American Tin Plate Company of Elwood are concerned. Three mills have been closed down for repsirs, throwing only 45 men out of employment temporarily and leaving two mills in active operation in the hot mills department, while all the rest of the plant 'is running right along at its usual capacity. The repairs to the three mills were to be completed by the end of this week, when they would probably be started. The additional five new mills have been completed and put in operation. understand that the employees have been informed that there will be no reduction in wages.

A LONDON CABLE DISPATCH cites the Exchange Telegraph Company of that city as authority for the statement that the Welsh manufacturers are so anxious for the return of the British tin plate workers now in the United States that they have offered them free transportation home, in addition to guaranteeing them employment, if they will return.

THE TIN PLATE MANUFACTURING COMPANY who located recently at Anderson, Ind., were incorporated last week under the name of the National Tin Plate Company.

THROUGH the month of September of this year the New Castle Steel & Tin Plate Company, New Castle, Pa., employed over 460 workmen and paid out \$20,000 in wages.

THE STOCKHOLDERS of the American Tin Plate Company, Elwood, Ind., at a recent meeting, elected the following officers and directors: President, W. B. Leeds; vice-president, John F. Hazen; treasurer, D. G. Reid; secretary, L. H. Landon; directors, W. B. Leeds, Mrs. W. B. Leeds, D. G. Reid, J. M. Oversheimer and John F. H zen.

N. & G. TAYLOR COMPANY, tin plate manufacturers, Philadelphia, advise us that they are running 18 stacks, and that the demand for their plates was so great during the latter part of last month that they were compelled to work up to 10 o'clock at night. The firm say they not only propose to keep up the quality of their standard brands, but to improve them in every manner possible; and that they have now under way a plan for increasing the wearing qualities of the Taylor Old Style brand, which already carries a very heavy coat-

A REPRESENTATIVE of the United Press in London has been interviewing the representatives of firms in various branches of trade doing an export business with the United States, in regard to the effects, present and

prospective, of the Wilson Gorman tariff on British industries. Ameng others, F. Bond of Vivian Younger & Bond, metal merchants, had this say about the tin plate trade: "Heretofore the effect of the tariff has been almost nil in our business. There must have been a quantity of tin plate in bond in the United States. I believe there will be a tendency in the States to increase gradually the home production. The new duty will not encourage the tin plate firms in South Wales greatly. It does not leave a sufficient margin to encourage and develop rapidly the American tin plate trade, but the growth of tin plate manufacture in the United States is bound to be exceed ingly gradual in any event, for tin plating is the bardest process in any branch of the metal trade." This difficult proc-ess, however, has, we understand, already been mastered by American workmen in American tin plate works.

THE COMPETITION in Spain between Welsh and native made tin plates is referred to as becoming severe. The new three-mill works near Bilbao are in operation and are turning out a considerable quantity of plates. They are said to be well arranged and fitted with the latest appliances.

THE BLAINA IRON & TIN PLATE COMPANY, LIMITED, of Monmouthshire, England, have announced to their workmen that the works will commence operations on October 15 on the same terms as neighboring works. This means a conceasion by the workmen of 15 sheets of tin plate per box, an arrangement made by the men in the different Phillips works, at Abertillery, Nantyglo, Pontymister, &c. This is a method by which the 36-box rule is nominally adhered to, but virtually evaded.

THE ATLANTA STEEL & TIN PLATE COMPANY, Atlanta, Ind., are making rapid progress in the erection of their works. The contract for mills is in the hands of the Lewis Foundry & Machine Company, Pittsburgh. The foundations for the rolls and engine are partially completed. The engine is a Woodruff & Beach automatic cut off 36 inch disperter out. tomatic cut off, 36 inch diameter cylinder and 72 inch stroke, to be gesred direct to the mills. The buildings are The buildings are to be all iron and brick. The company have 2000 acres of gas territory in the Elwood district and are in the market for 4 miles of pipe for their gas line.

THE DUQUESNE TIN PLATE COMPANY of Pittsburgh, manufacturers of tin and terne plate, whose works are located at Soho, are considering the advisability of removing their plant to New Kensington, Pa., some 20 miles from Pitts burgh on the line of the Allegheny Valley Railway. In case the removal is de-cited upon it is the intention to erect a black plate mill for rolling down sheets from bars. As yet no decision has been arrived at in the matter, and it will probably remain undecided until the present wage troubles surrounding the tin plate industry have been removed.

THE BRITISH BOARD OF TRADE returns for September show exports of tin and terne plates during the month to have been 27,000 tons, against 25 000 tons shipped in the previous month. of this amount, 17,000 tons was sent to the United States, as compared with 13,000 tons in August. The movement of plates in this direction to enter under the new tarlff began to increase toward the end of the last month. It is likely that October's shipments will, however, | ing sailing ships afloat to day.

largely exceed those of September, as considerable quantities of plates which were held by importers in warch uses on the other side are said to have been withdrawn and shipped hither in the past week or two.

THE ENTIRE PLANT of the Ellwood Tin Plate Conpany, E twood City, Pa., is closed down pending adjustment of the wage scale.

J. H Rogers, the well-known tin plate manufacturer, of E. Morewood & Co., L'anelly, Wales, is now in this country in connection with his interests in the plant at Gas City, Ind.

ONE OF THE MOST distinguished gatherings of military and naval officers ever witnessed in the city of Philadelphis took place on the evening of Tuesday, October 9, when Clarke Merchant, head of the well-known tin plate and metal house of Merchant & Co., Incorporated, tendered a reception at his residence, 1615 Walnut street, to the Commander-in Chief of the Military Order of the Loyal Legion, assembled in the Quaker City for its tenth annual meeting. The handsome residence of Mr. Merchant was beatifully decorated for the occasion with palms and flowers, while a string orchestra discoursed delightful music. After the reception in the main parlor a collation was served to the guests, the list of whom included many famous names. Mr. Merchant is a graduate of the Annapolis Naval Academy and served as a lleutenant commander in the navy.

THE CRESCENT SHEET & TIN PLATE COMPANY, Cleveland, Ohio, were in-corporated October 5, with a capital of \$200,000, to manufacture, sell and deal in sheet iron and tin plate, with the following directors: H. P. McIntosh, Francis Widlar, N. C. Brewer, E. W. Moore, A. B. Foster, James Paton and J. A. Matthews. At a meeting of the directors the following officers were elected: President, M. P. McIntosh; vice-president, A. B. Foster; secretary and treasurer, J. A. Matthews, and superintendent, James Paton. The company will begin operations with a fourmill plant, increasing their facilities in accordance with the demands of business. Two hundred and fifty men will be employed, and there will be a daily output of 35 tons of the manufactured product. The company have not yet decided upon a location, the prices asked for land not having been entirely satisfactory, but it is definitely settled that the mills will be erected either In Cleveland or in Loralu.

The medical officer of health of Bethnal Green, one of the poorer quarters of London, says of the 102 bakehouses in the district that in 40 per cent, the bread is made in cellars. "In the whole of the parish," he reports, "I only found seven of these places in what I should call a clean and satisfactory condition; the others are either dirty and untidy or some fault was found, such as bad ventilation, defective sink traps, closet flushing apparatus out of order, or bad surface drainage of vard, &c.'

It is an interesting fact, says the American Shiphuilder, that the relative dimensions o Nosh's Ark—viz., depth one tenth of length and beam one-sixth of length, glving depth 60 per cent. of beam, are precisely those of many of the finest, fastest and heaviest cargo carry-

# THE RETAIL STORE.

### New Ideal Oil Heaters.

The A. C. Barler Mfg. Company, 111 and 113 Lake street, Chicago, have brought out two new oil heaters which are herewith illustrated. Fig. 1 shows the larger of the two, which is named the No. 6 Ideal, and Fig. 2 represents the smaller, named the No. 5 Radiant. The No. 6 Ideal is constructed on an entirely new principle of air circulation. The Russia iron heating drum has an interior lining which extends down to and incloses the burner. A circular row of smal holes around and close to the burner admits air to be heated. The air thus passes into the heated stace between the outer jacket and inner lining in numerous small currents and becomes instantly very highly heated and is discharged at the top without coming in con act with the flame. It pours out at the top with even greater fierceness than the discharge from a hot air furnace through The stove also emits addi a register. tional heat by radiation from the direct action of the flame. The drum tips over for lighting or filling, and when tipped is firmly held in a slanting position by an ingenious locking joint. The burner is a 9 inch circular, central



New Ideal Oil Heaters -Fig. 1.—The No. 6 Ideal Heater.

draft, with an extra feeder wick. The oil fount is removable from the base, made of brass which is nickel plated, and every one is tested by steam. The stove is finished with a removable swing top, having a grate under it for heating water or cooking. Half balls are east on the feet, enabling it to be readily moved on the floor, although the stove is so light that it can easily be carried from one room to another. It is beautifully ennamented with nickel work. The heat supplied by one of these

stoves is remarkable when its size is considered. It stands but 33 inches high.

The company are just completing an indicator to be applied to the fount, which will show unerringly the quantity of oil in it, or whether it is empty.



Fig. 2.—The No. 5 Radiant Heater.

This indicator will be placed on all Ideal heaters in the future. It is separate from the filling aperture.

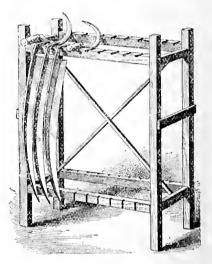
The No. 5 Radiant heater is smaller than the Ideal, being only 30 inches high, is made with an ornamental flat top for heating water or cooking, but in its interior construction is the same as the No. 6 Ideal. It is intended to meet the requirements of those who desire a less expensive and yet an efficient oil heater. The finish is of the same high character. These atoves are warranted by the makers not to emit either amoke or smell.

### Self Pouring Oil Can.

Asbury Paine Mfg. Company, Tren ton, N. J., are putting on the market the Self Pouring oil can, by which the filling and emptying of lamps and oil stoves is readily accomplished. The self pouring action is due to air pressure exercised on the oil by the special form of lid which is employed. inverted cup lid slides within the neck of the can. The knob attached to this lld has a small hole through it to act as an air inlet or outlet. As the apout goes to the bottom of the can every drop of a l, it is stated. Is poured from the can. The spout forming a siphon, the oil can also, it is claimed, be withdrawn from the lamp or oil stove when de The opening in the can is 27 inches in diameter, so that through it, it is pointed out, the can may be cleaned in side and filled without a funnel, while the size of the opening also permits the oil in the can to be seen. The cleanliness connected with the use of these cans is especially emphasized by the manufacturers. They are made of brass and tin, polished, in two sizes, No. 1 holding 2 quarts, and No. 2 holding 4 quarts.

### Scythe Rack.

The accompanying cut represents a rack for holding the stock of Scythes, a description of which appeared in Ironmongery of London. The upright posts are 2 inches square, and the side rails upon which the Scythes hang are 1 x 134 inches in size. The rack is 42 inches long and 48 inches high. The slots cut in the top rails are just wide enough to accommodate the heels of the Scythes, while the cuts in the lower rails are made with a hand saw, sufficiently deep to allow the ends of the Scythes to rest in their proper



Seythe Rack.

places. The rack described is designed to hold 18 Scythes on each side—though a rack can obviously be made to hold a greater or less quantity.

### Cast Steel Garden Weeder.

Sheble & Klemm, Frankford, Philadelphia, are putting on the market the garden weeder here shown. It is made of cast steel, which, It is claimed,



Cast Steel Garden Weeder.

renders the tool much superior to the ordinary iron article. It is described as being well finished, sharp and not likely to clog. It is supplied with either short or long handle.

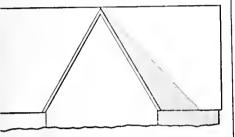
MEYER BROTHERS, 4146 Cottage Grove avenue, have the contract for warm air heating in the six flat buildings of E Pardridge, Rhodes and Indiana avenues.

# STEAM AND HOT WATER.

Heat Lost by Roofs.

BY LEICESTER ALLEN.

It is very desirable that some reliable data should be collected on this subject. Box, in his treatise, speaks of it in cases where there is no interposed ceiling as being a large amount, almost impossible to calculate. I might cite numerous instances where the roofs of buildings are probably as important factors in the loss of heat as the glass.



Heat Lost by Roofs.—Fig. 1.—Elevation of Roof.

I know of a church roofed with slate, the roof being of the king post variety and having a high pitch. It has no ceiling under the roof trusses. This church, though consuming large quantities of coal in cold weather, has never been comfortably warmed when the outside temperature was low. Sometimes all the gas burners have been lighted to sid the four large furnaces, and yet, the latter being driven to the utmost, the church cannot be warmed sufficiently for comfort. There are few buildings of its size these furnaces could not overheat in any weather to which this edifice is exposed. The interior looks nicely with its richly decorated roof

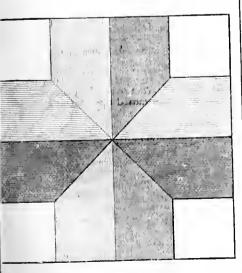


Fig. 2.—Pian of Roof.

trusses exposed, and from this point of view the roof is satisfactory; but as a place for people to congregate in comfort in winter weather the structure is a decided failure.

I contracted for and superintended the erection of a steam heating plant in

a suburban house several years ago. It was a frame house filled in with The house was two stories brick. high, nearly square in plan and had an unceiled attic covered with a high shingle roof with four gables, about as shown in Figs. 1 and 2, which are, respectively, a plan and elevation. The apparatus was finished and tested at a time when doors and windows were all in, and the house had been lathed and plastered throughout. Only the hard finished coat, the trim and interior were lacking to complete the building. The foreman on the job reported to me that there was a deficiency in the heating power of the plant. I went out to see for myself what was lacking, and as I approached the house I noticed that, while the roofs of neighthe snow on its roof was much melted away. As I entered the building, the foreman called my attention to thermometers placed in different parts of the house. The average indication was a little less than 60°. Telling him to follow me, I ascended to the second story and found the door at the head of the atairway leading to the attic had not yet The heating of this been mounted. attic, used for storage only, had not been comprised in my contract.

I had the door mounted, and closed it. Thereafter the apparatus filled its guarantee in every particular. In one hour after this door was closed a temperature of 70 was maintained everywhere in rooms containing radiators, with the automatic damper of the boiler closed down, and the boiler steaming freely with a moderate fire. By driving the apparatus the temperature could very easily he made excessive. Here was a practical illustration of the effect of roofs in transmitting heat from interiors of buildings.

I once placed a steam heating apparatus in a New England church having a high pitched slate roof with a ceiling of corrugated sheet iron under it, nailed on wooden supports. I allowed for this roof a transmitting power equal to the exterior surface of the two side walls of the church and added 25 per cent. I calculated the radiating surface necessary to supply the heat this roof would transmit on the basis named, while for walls, glass I used customary and ventilation methods. I found very little excess of capacity in the apparatus to meet the demands for severe cold westher.
The roof in question was a veritable cosl eater. The sheet iron ceiling transmitted heat to the space between it and the roof almost as readily as though a large opening had been cut through it. Several times I went up into this space with a thermometer and found it the warmest part of the building. This roof had about the form indicated in the diagram, Fig. 3, which may be regarded as a cross section. Doubtless the readers of The Metal Worker can contribute many instructive experiences on this subject which would prove of interest and value to the trade

In a building having a roof exposed interiorly, I once knew of an addition of about 30 per cent of radiating surface

over that first put in before anything like satisfactory results were obtained. The amount first put in was more than enough for a building of equal size, having same walls and glass, but roofed and ceiled in the best manuer with lath and plaster. I infer, therefore, that in this case the exposed roof increased the first cost of the plant something more than 30 per cent.; and as fuel consumption increases nearly in the ratio of increase of radiating surface needed in a

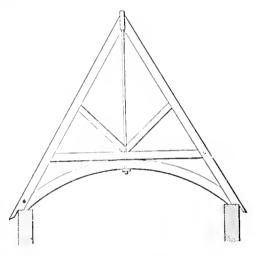


Fig. 3.-Section through Church Roof.

building, in this case about 30 per cent. of the fuel burned was demanded by the unceiled roof.

### HEATING NOTES.

M. Mahony of Troy, N. Y., is distributing a very neat card calendar for the month of October, copies of which are before us. In one instance the design consists of a landscape in which the typical milkmaid is seen returning to the house, while above the picture is a fac-simile of Mr. Mahony's trademark, together with his name and address. Another design has the trademark as its central feature, while above is an inscription intimating that thousands of homes are made comfortable by the use of the Mahony boilers.

HEAT CONSTRUCTION COMPANY are a corporation at Chicago, Ill., with capital stock \$250,000. The incorporators are George M. Stevens, Clayton E. Crafts and William E. Crafts.

AT A RECENT MEETING of the directors of the Sperl Heater Company, Carbondale, Pa., the machine tool equipment for the shop was ordered. With the exception of the boiler, which is to be furnished by B. W. Payne & Sons of Elmira, N. Y., the equipment will be furnished by the Niles Tool Works of Hamilton, Ohio, whose representative, L. B. Eaton, an old Carbondale boy, secured the order for that concern.

THE HOLLAND RADIATOR WORKS, at Elwood, Ind., are busily engaged and a steady increase in the pay roll is reported. Orders are being received in

gratifying numbers, and the outlook for the workmen is encouraging for steady employment at fair wages.

RICHARD D. JACKSON, Jr., 89 Centre street, is the New York agent for the Ideal boilers made by the Ideal Boiler Company, Chicago.

- J. H. Colman has just returned to the New York office of the J. H. Mc-Clain Company, Canton, Ohio, having made a profitable trip through New England in the interest of the Cantou, Humber and Cambridge steam, hot water and hot air apparatus.
- L B. Collins of the Holland Radi ator Company, Chicago, has been making a visit to their different foundries, and is now at the New York office prepared to fill all orders promptly.

THE D. F. MORGAN COMPANY of Akron, Ohio, with Western branch at 23 and 25 West Lake street, Chicago, now have their new steam boiler ready for the market. They claim that it is "the most economical boiler in the world."

# HEATING DO PLUMBING.

### NEW WORK AND CONTRACTS.

CARNEY BROTHERS, Utica, N. Y., have secured the contract for the plumbing in the St. Luke's new Parish Building, and also in the parsonage now being erected by the congregation of the Zion Lutheran Church.

EXETER radiators are being used by W. D. Parlin, Natick, Mass., in heating the Wellesley College, at Wellesley, Mass., and by H. W. Hubbard, Keene, N. H., in heating the new school at Troy, N. Y.

E. B. NEALLEY, Bangor, Maine, is building a large business block that will have a steam heating plant.

MICHAEL KILROW, Norwich, Conn., the plumber, has a large contract on hand putting in about 3 tons of lead pipe at Thos. DeWolf's place in Prestoo, to carry water from a reservoir to the house and barn. Mr. Kilrow is also putting in new plumbing at Mrs. Kent's house.

Monaher & Breed, Norwich Conn., have charge of the plumbing in the new Central Building, and will put in 10 water closets, besides washbowls and other fixtures. They also have the contract for the steam heating, and will use two Allright hoilers. Monaher & Breed have another important contract in the plumbing of the Allen flats on School street.

GEO. F. BARD, Norwich, Conn., is at work on a large contract at the Pequot Mills in Montville, putting in a system of hydrants for fire service. A large steam pump will be connected with a 10,000-gallon tank for this purpose. Mr. Bard also has the plumbing of M. M. Whittemore's house on East Broad street, and the refitting of the Wauregan House with new plumbing fixtures.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until October 25, for all the labor and materials required to fix in place complete the low pressure, return circulation, steam heating and ventilating apparatus for the United States Custom House and Post Office Building, at Sheboygan, Wis. Drawings and apecifications may be had

from the office of the Custom House, at Sheboygan, Wis., or from the Supervising Architect, at Washington.

A NEW HEATING SYSTEM is to be placed in St. Mark's Church, Adams, Mass.

A. L. Brown of Norfolk, Conn., has closed a contract to put in a large "ram." to pump the water from Haystick Mt. to the house of Levi Phelps, in the northern part of the town. This is one of the largest jubs of the kind which has been undertaken in that locality, and involves the laying of more than 3000 feet of pipe.

THE SCHOOL COMMITTEE of Belmont, N H. will expend \$1500 for a heating plant for their new school building.

IT IS PROPOSED to heat by steam the building of the Berwick Odd Fellows, at Somersworth, N. II.

THE CONTRACT for heating and ventilating the new crimary school building, at Northboro, Mass, has been awarded to the Hub Plumbing, Heating & Stove Company, Clinton.

W. H Morrison, Torrington, Conn., is putting Gorton boilers in both the McNiel block and Hotchkisa blocks He says the Government use this boiler for their buildings, there being 35 of them at Fort Sheridan.

LEVI CASE & Co., Glena Falls, N. Y., have been awarded the contract for putting in a steam heating plant in St. Mary's Church. They will use a Florida double boiler, for which they are agents. Several radiators will be put in, and coils will be located under one half of the pews. The firm have placed one of these boilers in the residence of A. W. Sherman, and have been given the contract to put heating systems in the Catholic Convent at Keeseville and the Commercial Hotel in Whitehall. They are also doing the plumbing in S. D. Kendrick's house.

HARING & Co. of Sufferns have just completed the plumbing work and the heating apparatue in the new Methodist parsonage, at Sloatsburg, N. Y.

THE SUPERVISORS' COMMITTEE ON PUBLIC BUILDINGS, at Mayville, N. Y., is about to solve the problem of heating the county offices at this place in cold weather, by removing the 25 horse-power boiler from the insane asylum at Dewittville to the building of the County Clerk. It is proposed to not only heat the clerk's and treasurer's offices, but to conduct the steam underground across the park to the court house and heat that building. Since the insane were removed from the county farm the asylum has been tenantless, consequently the boiler is of no use there.

WALTER P. DUNN has the contract for heating the new school house on Ridge street, Newark, N. J.

THE II. MOOERS COMPANY of Milwaukee have secured the contract for heating the two new brick blocks of lasac Stephenson in Marinette, Wis., also his other two blocks adjoining.

J. P. Adamson, St. Paul, Minn., bid \$3200 and secured the contract for putting a hot water heating p'ant in the court house and jail at Haatings, Neb.

THE THATCHER FURNACE COMPANY are installing two of their large size No. 12 Champion steam boilers with twin connection in St. Ann's Church and Academy at Nyack, N. Y. The boilers are placed under the church, which is piped on a circuit system and heated

by direct radiation. A 4-inch steam main is run in a trench 120 feet to the acbool and chapel building, which is heated on a similar plan.

JAMES BIRKETT, Brooklyn, N. Y., is installing in the achool at Amityville, L. l., a combination heating plant, using an Economy combination ateam and hot air apparatus.

FRANKLIN & BURNHAM, Beekman and Pearl streets, New York, have closed a contract with William Hart to heat his factory with an Economy ateam heater.

Among the contracts taken by the Baker & Smith Company, 193-197 Van Buren street, Chicago, can be mentioned the steam heating in the Masonic Temple, Lead, S. Dak., and the Catholic Church, Campus, Ill.

THE L. H. PRENTICE COMPANY, 203-205 Van Buren atreet, Chicago, have the contract for steam heating in the Chicago Historical Society Building, Dearborn avenue and Ontario atreet.

THE CHICAGO HEATING COMPANY, 40 North Clark street, Chicago, are to install a steem heating plant in the Post Office Building, 1058 Millard avenue.

THE FULLER & WARREN COMPANY, 147-149 Lake street, Chicago, report the following contracts for warm air heating: John E. Cowles, Woodlawn avenue, four houses; S. M. Gosselin, Hermitage avenue, three furnaces; R. H. Klekant, 7532 Wright atreet, two furnaces; S. C. Swern, West Adams street, two furnaces; W. W. Augur, 404 Ontario street, one furnace; R. W. Hyman, 168 Ontario street, one furnace; also a complete system of warming, ventilating and sanitary closets for the public school at Bayfield, Wis.

THE KELLY & JONES COMPANY, 48 to 52 North Clinton atreet, Chicago, have been awarded the contract for ateam heating the Josephine Madden apartment building, Calumet avenue and Thirtieth atreet.

A. Mandler, 164 Webster avenue, Chicago, has the contract for the plumbing, gas fitting and sewerage in the flat building of M. Fisher, 321 Chicago avenue.

THE ROBINSON HEATING & VENTI-LATING COMPANY, Limited, of Altoona, Pa., have been awarded the contract for placing the heating apparatus in the new Methodist paraonage in Hollidayaburg.

TOBER, CARRY & Co. of Augusta, Maine, have been awarded the contract for putting in the new heating apparatus for Johnson Bros., shoe factory.

THE CONTRACT for heating the Mercer County, N. J., Almahouse has been awarded to the Headley Leavitt Company of Trenton, N. J.

THE CONTRACT for furnishing the steam heating and ventilating apparatus for the public building at Martinsburg, W. Va., has been awarded to Conrad Cline of Martinsburg.

THE STEAM HEATING PLANT installed by Rufe Bros. in the new post office at Doylestown, Pa.. was tested for the first time last week with highly pleasing results to all concerned.

M. E. CAMPBELL has been awarded the contract to place a steam heating plant in St. Paul's Lutheran Church, at Orwigaburg, Pa.

G. GARDNER is putting ateam heating apparatus into the Hotel Gardner, at Adams, N. Y.

# ROOFING AND CORNICE.

### Laying Gravel Roofs.

From J. A., Chicago — Will The Metal Worker kindly publish directions for laying a gravel or tar rcof, and the amount of material required. Also how to repair an old roof of the same composition. I am located 18 miles from the business center, and there are a number of gravel roofs to be laid in this neighborhood. When there is any of this kind of work to be done here it is customary to employ regular roofers. With a little information on the subject I think I could do all such work.

Answer. - For a gravel rcof, the boards should have a slant of at least 1 inch to the foot, and the roof boards should be of a good quality of matched flooring. Commence at the eaves to lay the felt, by cutting off one-third of a strip, first laying the one third, then the two-thirds piece, then a full width sheet, the three edges being even at the eaves. The finish at the top of the roof is made in a similar manner. The roof is then to be laid as in shingling, laying each sheet one-third exposed, thus making three thicknesses of felt. While the felt is not to be attached to the boards except by nailing, the edges can be secured by cementing with roofing composition. The felt is held to the roof boards by roofing tins, which are punched or pressed pieces of tin with a hole in the center, through which a barbed wire nail is driven. The tine are put on in rows at right angles to the eaves, about 8 inches apart, and 4 feet between rows. Care should be taken to lay the felt without wrinkles, and when nailing, begin in the center of roof and nail toward the edge.

For a finish at caves or other edges of the roof use lath, which can be secured with barbed wire nails. For a finish about fire walls, chimneys or skylights, the felt should extend up the sides about 1 inch, with lath or triangular strips of wood firmly nailed over the edges. When finishing about chimneys and skylights it is well to use an extra thickness of felt. The roofing composition is to be applied hot, and for the purpose of heating same it is usual to employ an iron kettle of suitable size. Commence at the top of the roof to apply the composition, which can be done by means of a mop. As one man applies the composition, another pushes the gravel into it, this being done while the composition is hot. For the ordinary gravel roof coal tar is used, which is thickened with rosin, this being done while the tar is heated. Clean, dry gravel should be used, such as is free from sand and loam. For one square of a three-ply roof there is required about

50 pounds of felt, 100 pounds of composition and ½ cubic yard of gravel. For a four ply roof, 60 pounds of felt and the same quantity of composition and gravel.

To repair leaks in an old roof, sweep off all gravel and dirt about the leak and remove the old composition. Apply three thicknesses of felt with compositlon between. Then nail the felt about the edges, using roofing tins and barbed wire rooting nails; then cover with composition and gravel. To recoat an old roof, the loose gravel and dirt should be removed, using shovels and heavy brooms. Repair any leaks that may be found, when the composition and gravel is to be applied as above directed. While gravel roofers may use a compound of coal tar and rosin, dealers in roofing materials have a roofing pitch distilled from coal tar that is recommended as superior to coal tar and rosin. There are also various kinds of prepared roofing that can be applied without gravel. The felt is of sufficient strength and thickness so that only one thickness is required. The edges are joined by means of cement and nails, the whole being covered with composition, sand and some fire proof compound.

### FLASHINGS.

The American Roofing Company of St. Louis, Mo., have lately closed contracts for five cars of galvanized iron, 23 gauge, for a large steel foundry now being built at Granite City, Ind. and for three cars, 20 gauge, painted iron, for the same place. The company have recently put on the market what is known as the American metallic lathing, for which they report a very satisfactory trade. They are preparing samples, circulars, &c., illustrating this lathing, which will shortly be sent to the trade.

E. A. Muzzy of Meriden, Conn., has just put a gravel roof on the new S. & S. meat house on Union street, for C. D. Kinney, the contractor. He has also finished the work of recoating all the roofs of the Warner Foundry at Cedar Hill and has several out of town contracts.

THOS. F. ABERN & Co., New Haven, Conn., have the contract for the steel ceilings in the new Hublinger Building on Chapel street.

The Willis Mfg. Company, 128-130 North Academy street, Galesburg, Ill, have just issued from the press a new catalogue of stamped ornaments. The volume is oblong in shape, consists of 56 pages, and is bound in board covers with gilt side title. The goods shown in the catalogue are produced in zinc, copper, brass or bronze, and, as a majority of the goods are kept in stock at all times, the makers are in a position to

promptly supply the trade. They refer to their facilities for modelling and special work, and state that the prices quoted are for goods in sheet zine, unless otherwise noted, and are subject to a discount to the trade, which will be quoted on application. The assortment shown includes sheet metal statuary, enrichments, spandrela and gable ornaments, panels, rosettes, shells, scrolls, leaves, capitals, garlands, finials and stamped shingles for hips. Attention is also given to rock face painted steel, self capping roll roofing, galvanized iron gutters, ceiling centers, interior cornices, &c. The catalogue circludes with an alphabetical and a numerical index.

James A. Miller & Bro., 129 and 131 South Clinton street, Chicago, are to furnish the skylights for the Monon shops, at La Fayette. Ind; also the sheet metal and slate roofing on the buildings at Fort Harrison, Helena, Mont.

The following simple process for brorzing copper is credited by the Scientific American to M. Mondit of Caen, France. The formula is said to be capable of giving every tone from bronze to antique green, according to the length of time that the copper is allowed to remain in contact with the liquid. After the piece has been scoured it is covered with the following mixture by means of a brush:

 Castor oil
 20

 Alcohoi
 80

 Soft soap
 40

 Weter
 40

The mixture is left on till the required shade is obtained, then dried with hot sawdust and coated with a very dllute varnish.

Chicago has a woman garbage inspector, Mrs. Paul, who is said to be a pronounced success in her recently acquired official capacity. She really inspects, "exploring streets and alleys, and does not hesitate to watch the "dumps" receiving their refuse loads. As she is not paid by the city, but by the women of the Municipal Order League, at whose instance the city anthorities have clothed her with power to act, Mrs Paul is entirely independent of politics and is therefore able to carry out her duties unhampered.

The rolling mills of the McCullough Iron Company, North East, Md., were damaged by fire on the 9th inst., caused by an explosion of lamps in the engine room. Two of their three sheet mills escaped injury and are working without interruption. The roof over the third mill was burned and the bar mill was destroyed. The forge and other buildings were not harmed. The loss is amply covered by insurance, and the company will repair the damages at once. There will be no interruption to business. Their other sheet mills, at Wilmington, Del., and Rowlandaville, Md., are running on full time.

# STOVE TRADE NOTES.

### The Ohio Stove Trade.

There is a slow, but steady and decided, improvement in the condition of the stove and range industry throughout Ohio, Indiana, Kentucky and West Virginia. Reports received from the trade in the section referred to, without an exception, are encouraging. The returns from manufacturers in Ohio are especially gratifying, reflecting a confident feeling respecting the future as well as an increased volume of business for the present. The prominent features noted two weeks ago have been accentuated and further confirmation of the state of business as then set forth has been received. A majority of the foundries testify to an increase in the volume of business during August and September over corresponding months of last year of 20 to 25 per cent. It may be well to state, however, that in some sections of Indiana, while there is an improvement in progress it is less decided than in Ohio and Kentucky, the drawback to trade being due seemingly to financial affairs, collections being difficult to make, and customers who a few years ago discounted bills are now disposed to ask extension in time of payment and other indulgences.

While dealers are still very conservative and are inclined to let manufacturers carry stock, the character and urgency of the orders placed indicate a healthful and steadily growing demand from the consumptive trade. While the individual orders are small the aggregate is considerable, and with few exceptions the demand is for immediate or early shipment. A point worthy of special note is that the sales of manufacturers, especially during September, were not only larger than during the corresponding time last year, but indicated a marked improvement over trade in 1892, when the largest business of record was experienced by many foun-

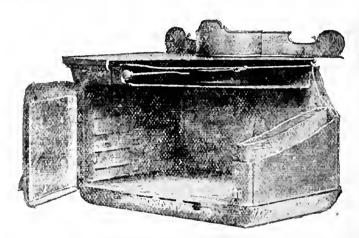
The most recent development is that mall orders from salesmen on the road are rapidly increasing, and if the outlook does not change most foundries will be kept running full until Christmas. Since July 1 each week has witnessed the return to work of an increased number of molders, so that now many, if not all, shops in this section are employing a full quots of men and at full time, too. This transfer from the idle to the ranks of the bread winners is a factor of great importance and significance; in fact, it must be regarded as the most encouraging feature in the business situation.

Money is plenty, and as the banks are less rigid in scrutinizing business paper there seems to be more solicitude to loan rather than to borrow. During the past week, however, lines of discount at the banks have increased materially and more currency has been sent to the country to assist in the movement of tobacco, cotton and other crops. This freer distribution of funds is reflected in the more confident tone prevsiling in commercial circles.

### Walker's Culinet Range.

The Walker & Pratt Mfg. Company, 31-35 Union street, Boston, Msss., have added to their assortment and recently placed on the market a range possessing many features of interest to the trade. It is known as Walker's Culinet and is heated air from the rlsing pipe to the lower edge of the doors. The oven is elevated, occupying about the same position as a pipe shelf, and is supported by a column or rising pipe which is made double, there being one pipe within the other. The space between the inner and outer pipes forms a flue which passes the air for ventilating the oven and heating the oven doors. This oven construction is one of the special features of the Culinet and the manufacturers atste that the three necessary principles of oven ventilation are followed. The top of the oven forms a convenient warming shelf. The low closet is placed in the space behind the fire box and below the range top, with a door on each side. It is of good size with a shelf at middle hight. The upper closet is above the oven and has a lift front of pianished iron.

In the styles of the stove which are provided with hot water boiler, the



Walker's Culinet Range.—Sectional View of Oven with Parts Broken Away, Showing Flue Construction.

provided with oval fire box, fitted with a plain grate of improved form or with the company's patent triple shaking grate, as may be ordered. There are five boiler holes, the fire being directly under the two front covers. The arrangement, however, is such that the products of combustion pass under all the covers before hesting the oven, which is oblong in general shape and has a capacity for easily receiving at once several pans or dishes. The oven is heated on six sides, thus giving a uniform temperature in every part. The vertical smoke flues in the ends of the oven are thin cast iron tubes, while the top oven flue is of rectangular form, these flues being entirely within the oven. The smoke flue is in such a position as to cover the entire back of the oven. The illustration which we pre sent herewith represents a sectional view of the oven used in the Culinet range and will enable the reader to form a good ides of its construction and the arrangement of the flues. oven doors are also provided with flues, through which is passed a current of air highly heated by circulation between the inner and outer parts of the double rising pipe. An interior flue leads the

latter occupies the place of the low closet, resting behind the fire, to which it is directly exposed. The boiler is made in one piece of cast iron, and the largest size has a capacity of 40 gallons. The Culinet is referred to by the manufacturers as being very compact and of convenient hight, the top cooking surface being 30 inches above the floor, while the bottom of the oven is elbow high. With regard to the ornamentation, the Culinet has no nickel plated trimmings or polished edges. handles and rail are of bronze metal, giving very pleasing effects in contrast with the cast iron of the stove. A bronze rail extends across the front and is inte ded as a guard for clothing. It is set away from the top about 11 inches, and is arranged to form the handle of the broiler door, dropping out of the way when the door is opened. The brorze parts of the door hinges are also ingeniously arranged to form an element of the ornamentation.

THE HOME STOVE COMPANY of Indianapolis, Ind., report a good demand for stoves, and though running their foundry full force every day are still getting behind with orders.

Stove Freight Rates in the South.

The Chattanooga Stove Company of Chattanooga, Tenn., have good reason to rejoice over a recent change in freight rates. The Chattanooga Times

About a year ago this company, which was then in a most prosperous condition, was auddenly paralyzed by an advance in rates on stoves to Ohio points, in which territory the company did their largest business. At the time the advance came the concern were run ning with a full force of hands, and often with extras, to keep up with orders, while the increasing business made the managers vaguely think of enlarg-

ing the plant.

But without any warning whatever the Southern Railway & Steamship Association sent the rates up to such a notch that the industry was practically killed. At least it was killed so far that the works shut down, throwing many men out of employment. The warehouse was stocked with stoves just then and the managers were in a peck of trouble by the advance. If you had approached George W. Farrington, secretary and treasurer of the company, on the subject of freight discrimination against Chattanooga just then, he could have given you some pointers and enough of them to make you believe that Chattanooga didn't have a single friend among the railways.

He would have told you, for instance, that it was cheaper for them to ship atoves via Memphia to Ohio points than direct up the Cincinnati Southern from Chattanooga, because Memphis had such a cheap rate out of there to Ohio that her rate plus the rate from here to Mem phia wouldn t near equal the single rate from here to Cincinnati.

Of course, Mr. Farrington began to try to get the rate restored, so that the Chattanooga Stove Company might have a living chance for some business. But either because it didn't want to, or was such an elephantine body that it couldn't move with greater rapidity, the promise of relief made by the Southern Railway & Steamship Association hung fire and never ripened into fulfillment.

With all his effort he might have been working yet and the Southern Railway & Steamship Association might have been throttling this industry still, but for the withdrawal of the Queen & Crescent from the association. cut it loose, that made it independent, and then Mr. Alexander's way was clear.

Yesterday he received authority to make a rate on atoves from Chattanooga to Cincinnati of 19 cents per hundred, in effect at once. What this means is essily seen when it is stated that the old rate was 47 cents. By reason of the reduction the Chattanooga Stove Company will ship five carloads of stoves to Ohio points to day, the works will be run on full time and the force increased.

### ODD PLATES.

A MALICIOUS RUMOR has been circulated, which has found its way into the daily papers, that the Round Oak Stove Works, at Dowagiac, Mich., had closed down indefinitely. Fred. E. Lee, general manager of the estate of P. D. Beckwith, says that the works were shut down one week to enable the workmen to attend a local fair, but that they were not shut down indefinitely. He further says that the establishment

has run full all the year and at the same | wages paid before the panie.

THE ECLIPSE STOVE COMPANY OF Mansfield, Onio, write us as follows: The fall season for 1894 has opened up with us very satisfactorily, as we think most anybody would acknowledge when they come to consider that the amount of business done in August and September exceeds that done in the same months last year by 20 to 25 per eent.

THE FAVORITE STOVE & RANGE COM-PANY of Psqua, Onio, have increased their capacity every year during the past six years in order to keep up with the growing demands of their trade, and they now refer to their plant as one of the most complete of its kind in existence. They have 16 departments in the manufacture of their goods, each being in charge of an efficient foreman. The company have added many new patterns to their already extensive assortment and are bringing out additional goods as the demands of their enstoniers seem to warrant.

ALL the stove works in the twin towns of Royersford and Spring City, Pa., are reported as being in active operation, with favorable prospects for business.

THE LEXINGTON FOUNDRY COMPANY of Lexington, Ky, state that they are behind with orders on cook stoves and a few lines of heaters. They are running their shop full every day.

ONE OF THE ATTRACTIONS at the Gas Appliance Exchange, at 37 West Fourteenth street, New York, are the Jewel gas radiators made by George M. Clark & Co., Chicago. On entering the door three of these radiators attract the attention. The central radiator is finished with a white enameled cast iron base. The heating decorated with gold. tubes are of enameled sheet iron of a dark blue color. The top of the radi ator is also enameled. The radiator at the left has a nickel base, enameled tubes and a nickel top. The radiator at the right has a plain cast iron base, enameled tubes and plain cast iron top. These goods are fitted with the Clark burner, and are provided with an inner heating tube around which the products of combustion rise to the top of the radiator and then pass down through it to nearly the bottom of the radiator, where they find an outlet.

THE DETROIT PAPERS speak in very complimentary terms of the exhibit of atoves, ranges and oil heaters made at the recent State Fair by the Art Stove Company of Detroit, Mich. The ac-counts also state that the company are about to open a downtown salesroom at 202 Woodward avenue. They are fitting up the atore in a very attractive way and will carry a complete assortment of their apccialties. A novel feature of the showroom will be stoves in actual operation. The new salesroom will be in charge of John O. Campbell.

THE OHIO STOVE COMPANY of Ports mouth, Ohio, send gratitying information to the effect that their August and September sales show a marked increase over the same months of last year, the September sales being larger than those of 1892.

F. M. BORDEN & BROTHER, 120 North Second atreet, Philadelphia, are sending an announcement to the trade of an arrangement made with the March Brownback Stove Company and the Grander Stove Company, which enables them to acli their repairs at regular foundry prices. On the reverse

side of the announcement is a "A Word to the Y's," followed by a list of the foundries for which they furnish repairs at bottom prices.

E. K. CONANT, 9 West Fourteenth street, New York, is showing two new sizes of the Dangler return the radiator. This year these radiators are provided with burners that are easily removed and are so arranged that the heat passes up the flue on one side of the heater and returns down the flue on the oppoaite side from whence It is discharged into the room. Below the radiator is an evaporating water pan over which the heated air passes in escaping, carrying with it an agreeable moisture. Provision is made for refilling the water pan and a device provided that aids in lighting the burner.

THE FOSTER STOVE COMPANY of Ironton, Onio, report that for the past month they have had all they can attend

NEWSPAPER REPORTS which reach us from the South are to the effect that the Memphi Stove Company of Atlanta, Ga., who were partially burned out a few weeka ago, are about to retire from business. R A. Williama, the proprietor, is offering for sale his stock of cook stoves, ranges and heaters, granite ware and house furnishlng goods, and it is probable that the assortment will be closed out in a very short time.

THE CHICAGO & ERIE STOVE COM-PANY, Erie, Pa., are beautifying their extensive building at the corner of Twelfth and Sassafras streets with a new coat of paint.

C. EMERICH of Columbus. Ohio, writes: "Trade since the middle of September has far exceeded our expectations. Our new goods are com-manding a large trade, and a though we are running our foundry on full time we are behind our orders on some of them."

THE MANHATTAN GAS HEATING COM-PANY, 903 Seventh avenue, New York, are sending out their fall and winter catalogue of Manhattan gas heaters, showing a variety of styles and sizes. All goods are fitted with their patented chamber burner and adapted for either natural or artificial gas. They are designed for fire places and are furnished with cast iron frames in nickel, bronze or japan, and with rails, fenders and baskets. Several styles are shown in brass frames and with sides and fronts of polished and hammered brass. They are fitted with a detachable burner and mixer, and a slip connection, so that the grate is easily connected and need not be set in place till all the work in a new building is completed. It is claimed that they have capacity for heating a large room, and can be arranged to ventilate as well as heat. They have been used in some of the finest apartment houses and residences with satisfaction both as to heat and consumption

J. B OLDERSHAW of Baltimore, Md., was in the city the past week visiting his friends in the trade. During his stay he called at the office of The Metal Worker, and, in conversation relative to trade matters, he reported the demand for his specialties very gratilying.

THE PORTSMOUTH STOVE & RANGE COMPANY of Portsmouth, Ohio, among other good things say: "The demand for steel goods is constantly increasing, although that may be accounted for in part by the fact that the merits of the Model are being appreciated more and more every day."

THE UNION STOVE WORKS OF 70 Beekman and 66-68 Gold streets, New York, are offering their New Invader parlor stove in four sizes, and their Belmar for 1894 in three sizes, with diameters of the tire pots ranging in the several sizes of the Belmar from 9 inches up to 12 inches. The New Invader has been improved for this season and has round fire pot, shaking and draw cen ter grate, nickel trimmings, and handsome bronze urn. The Belmar embodies the latest improvements and is of rich ornamentation. The company state that they now make two sizes of the Red Cloud furnace or double heater, and have added a large size to their line of Commander furnaces. For their Flirt B cylinder stove they make nickel base and legs, nickel foot rails and nickel top band for all s'zes.

THE SMITH & ANTHONY COMPANY of 217 Lake street, Chicago, Ill., are to place a Hub warm air furnace in the building occupied by the Atlas Tack Corporation of 193 Lake street, that city.

Bridgeford & Co. of Louisville, Ky., write us to the following effect: "There has been a gradual improvement in business with us since September 1. The prospects are that there will be fairly good business in the South, though we do not expect any boom."

Grange Sard of Rathbone, Sard & Co. is spending a couple of weeks in Chicago, where he has a host of friends.

THE STAR COUPLER COMPANY, St. Louis, advise us that the demand for their Star couplers for connecting water back to boiler have increased to such an extent that they have been compelled to make additions to their factory, and also to introduce additional machinery. They have also adopted a new price-list, which makes the net prices for their couplers considerably lower than heretofore.

R. M. ELLIOTT of Hamilton, Ohio, received first prize at the Butler County Fair for his disp'ay of Peninsular stoves and ranges. Special mention was also made by the Committee of Award of the "constructive merit and elegance of desigo" of the New Air Tight Peninsular. We are also advised that Furlong & Emerson, agents of the Peninsular Stove Company at Franklin, Ohio, received first premium on the Peninsular line of goods exhibited at the Warren County Fair recently held at the place named.

THE GEM CITY STOVE COMPANY of Dayton, Onio, are very busy, and expect this year to do the largest business they have ever done.

"THE SPIRIT OF '76" is the title of a monthly publication devoted to the principles, incidents and men of 1776 and Colonial times. In the October issue is an interesting article entitled "Cooking in '76," the methods in vogue at that time being contrasted with the conveniences at the command of the housewife of the present day. illustrations represent a kitchen interior at Washington's headquarters, Newburg, N Y., the building being known in ante Revolutionary days as the Hasbrouck House. The brick oven in the kitchen was used for baking purposes by the family of General Washington during his stay, from April 4, 1782, until August 18, 1783. The method of using the old brick oven, which is described in a very interesting manner, is

in sharp contrast with cooking operations conducted by means of a new Columb'an Garland steel range there referred to as being made by the Michigan Stove Company of Detroit.

The Toledo Stove Company of Toledo O iio have a fine line of new cooks and ranges for both wood and coal, which are giving satisfaction to the trade. The makers are having a specially good demand for their Greenwood Oaks, which are made in five sizes. The company are steadily increasing their working force, and are now erecting a four-story and basement warehouse and mounting room.

THE WHITE MEG COMPANY, 40 and 42 State street, Chicago, have brought out the Imperial oil heater, designed to sell at a very low price, while at the same time meeting the demand for a good portable heating apparatus. It consists of a central draft lamp of 400 candle power, which is mounted on an ornamental cast iron stand. The stand is square shaped with four feet, so that it is not easily upset. Below the burner of the lamp a holder is attached which supports a sheet iron drum that extends The drum is above the lamp chimney. perforated on the sides to permit heated air to be discharged into the room, and is also perforated on the top for the same purpose or to enable it to be used for cooking purposes. An ornamental top is also provided, to give an appropriate finish to the heater when not in use for cooking. The Imperial is made in two styles of finish. One style is with black base, brass lamp and black top, while the other is with full nickeled base, lamp and top. The weight is only 15 pounds, so that it can easily be carried from one room to another. One filling runs it an entire day. The drum is attached in such a manner that it can easily be removed and the lamp can then he used for illuminating purposes.

THE ENTERPRISE STOVE COMPANY of Vincennes, Ind., state that September was the best month they ever had by 30 per cent.

INADVERTENTLY an error was made in our last issue in connection with the notice of the Elwards Parlor Lamp Slove Company, 123 Dearborn street, Chicago. The president of the corporation, A. M. Kitchen, should have been credited with the organization of the London Company, who will manufacture and sell these stoves in Europe and Australia.

A. E. Bourn of Plover, Wis., is the inventor and manufacturer of a stove to be used in cars in which potatoes are shipped. It is stated that the demand in the Northwest for stoves for this special purpose causes a trade of fair proportions.

THE Journal of Topeka, Kansas, states that the Wellington Foundry & Stove Works are to be removed to Wichita.

THE EXCELSION MFG COMPANY, St. Louis, refer to their Junior Hot Blast as meeting with much favor at the hands of the trade. They advise us that their sales of Charter Oak stoves and ranges are considerably in excess of last year and will compare favorably with the season of 1892, which was an unusually heavy one for these goods.

THE WALKER & PRATT MFG. Com-PANY, 31-35 Union street, Boston, Mass., favor us wish copies of several leaflets relating to the Culinet range, which they have just placed upon the market. We also have a little pamphlet entitled "Kitchen Help," the text being in-

tended to throw "new light on an old subject." The pamphlet tella how old atoves have been dressed in new garb with nickel trimmings and legs to make them longer, look bigger and sell better, the atoves themselves, however, remaining practically unchanged. In contrast with this are the merits of the Culinet, which are fully set forth. Reference is made to the hight of the top cooking surface, the elevated oven, the fire directly in front, as are also the broiler door, the clinker and the ash pan doors. The oven is double and heated on all sides, and only one damper is provided, which is pulled out to kindic the fire or bake, and pushed in to check the fire.

E. O. & W. STAFFORD, 7 West Fourteenth street, New York, New York agents of the Milwaukee Gas Company, Milwaukee, Wis., are showing photographs of a new gas radiator, a new size of the Perfection gas range, and a new gas grate. They are also showing a new bathtub made by the Moseley Folding Bath Tub Company, Chicago, designed to be heated with oil, and for which they have established an agency in Costa Rica. They are also showing a full line of goods made by the Gilfillan Scale & Hardware Company, Chicago, consisting of postal, confectioners' and other scales. They also show a very convenient nail puller made by the same concern.

MATTHEW O'NEILL of Binghamton, N. Y., agent for the Acorn stoves and ranges, secured first premium at the fair recently held in that place.

THE SCHANTON STOVE WORKS of Scratton, Pa., are putting a complete hydrant system into their establishment to be ready for fire emergencies. Automatic sprinklers are run entirely through the mounting and pattern shops.

THE NOVELTY GAS & OIL STOVE COMPANY, 25 East Fourteenth atreet, New York, are showing several new things in small gas heaters for apartments and bathrooms. They are very at ractive in appearance, with nickel plated bases and planished sheet iron bodies.

THE QUICK MEAL STOVE COMPANY, St. Louis, Mo., will be represented on the road during the coming season by Wm. S. Ley, who will visit the trade in Indiana, Michigan, Ohio and Kentucky; Wm. A. Lockwood in Kanssa, Nebraska and Oklahoma; Louis A. Buck in the Dakotas, Mionesota and Wisconsin; C. C. Hoppe in Missouri, Arkansas and Texas; H. P. Gingrich in Illinois; A. X. Smith in Iowa; John A. Preston in Florida, and Ralph S. Buck in Northern California.

THE FACTORY of W. M. Crane & Co., at 414 West Fourteenth atreet, New York, is the scene of no little activity at this season of the year. The factory occupies a space 50 x 200 feet, divided into an office and receiving atoreroom, nickel plating plant, polishing department, sheet iron shop and construction shop, with a large space devoted to the atorage of completed gas apparatus for heating and cooking and for mechanical purposes. All the d fferent departments are equipped with the latest labor saving machinery and the foreman is held responsible to turn out a high grade of work. Gas cooking apparatus, for the time being, is giving way to gas grates, Leader gas heating atoves, the Vulcan hot air furnace and Vulcan hot water heaters for large residences. Their department for making steel ranges and broilers for hotel and restaurant kitchens ia busy at all seasons of the year.

# TRADE REPORT.

# The Iron Market.

Reports are somewhat conflicting, although the weight of evidence is against an encouraging view of the situation. One aggressive district or individual concern may relapse into temporary repose as a contestant for work, but others rush into the fray with renewed desperation. Their attitude for the time being tinges the reports of localities or individual authorities. Although some of the greatest concerns in the country are reported to be very busy, proofs that they want more keep cropping up.

In Foundry Irons there is a weakening tendency. After a number of false starts, another attempt to advance rates of freight from Southern furnaces is talked of. This cry of "wolf" is

growing monotonous.

Charcoal Pig has sold under \$13 in

Detroit lately.

The feature of the week in the Metal trade has been the slump in Tin. The Tin Plate mills are still closed. Public sympathy is not altogether with the manufacturers.

Pig Iron.—Aside from a slight weakening tendency on the part of Southern Nos. 1 and 2 there have been no developments during the past week in the New York market. We quote standard brands \$12 50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tidewater. Bouthern Iron. same delivery, \$11.50 @ \$12 for No. 1; \$11 @ \$11.25 for No. 2; \$10.65 @ \$10.75 for No. 3; \$10 90 @ \$11 for No. 2 Soft, and \$11.15 @ \$11.25 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$10 @ \$10.40.

Philadelphia advices indicate that the demand for Pig Iron in that market is fair, but decidedly less active than it has been for some time past. Consumers appear to have covered their requirements for the next 30 or 60 days, so that new business is rather slow, and usually at pretty close to inside quotations. Furnaces are well sold up, however, and, while orders can be placed on terms somewhat in buyers' favor, there is no great pressure to sell, as such a course would weaken prices without leading to any important increase in the volume of business. General quotations for Philadelphia and nearby points are about as follows, and  $20\phi$  @  $30\phi$  less at such points as York, Harrisburg, &c.:

 Standard No. 1 Foundry X
 \$12.50 @ \$12.75

 Standard No. 2 Foundry X
 11.50 @ 11.75

 No. 2 Plain
 10.75 @ 11.00

 No. 1 Soft
 11.50 @ 11.75

 No. 2 Soft
 10.75 @ 11.00

The market for local Irons in Chicago is reported as holding up remarkably well. Among the sales of the past week was one of 2000 tons, which shows that all the large buyers have not covered their requirements into the future. The prospect for the foundry trade appears to be growing brighter. More foundries are being employed and they are increasing their consumption of Iron. Inquiries are consequently growing for Pig Iron rather than diminishing. Some cutting is reported in Southern brands, but the leading companies insist that they are holding

firmly to quoted prices. Lake Superior Charcoal has at length given way under pressure of some of the leading sellers and quotations are now openly made of \$13 by makers themselves. A 500 ton lot is reported to have been sold at Detroit under even this price. Quotations are given as follows for eash.

Lake Superior Charcoal. Local Coke Foundry, No. 1 Local Coke Foundry, No. 2 Local Coke Foundry, No. 3 Local Scotch Ohlo Strong Softeners No. 1 Southern Silvery, No. 1 Southern Silvery, No. 2 Southern Coke, No. 2 Southern Coke, No. 3	10.25 @ 10.00 @ 9.50 @ 10.25 @ 13.00 @ @ 10.75 @ 10.50 @	11.00 10.25 10.00 11.00 13.50  11.25 10.75

In the Pittsburgh district, in spite of the large output of Pig Iron, stocks are low, showing that consumption is keeping well up with production, for the time being, at least. This is used as an argument by those who insist that the downward tendency in prices will soon be checked, and a recovery take place. However, the future of the market is very uncertain and depends altogether on the demand for finished material. The situation in Foundry Iron is the same as has been noted from week to week for some time past. We quote as foliows:

In the Cineinnati market, while the volume of current business in Southern Pig Iron is undoubtedly smaller than it was a month or two ago, there appears to be more Southern Iron selling than is currently produced and the shipments from the furnaces are trenching upon surplus stocks. The market may be said to be steady with sales of single carloads up to 1000 tons, and in the aggregate a fairly satisfactory volume of business. There have been considerable sales of Charcoal Iron and generally at lower prices. As a rule Southern Coke Iron is well sustained in price, but the general tone is not very confident and if stocks were urged upon the market they could not long be sustained. Quotations are as follows:

Southern Coke, No. 1	<b>8</b> 10.7F
Bouthern Coke, No. 2 9.75 @	10.00
Bouthern Coke, No. 3 9.10 @	9,25
Ohio Soft Stone Coal, No. 1 14.50 @	15.0.
Ohio Soft Stone Coal, No. 2 14.00 @	14-5C
Lake Superior Coke, No. 1 12.00 @	12 50
Lake Superior Coke, No. 2 110 @	11.50
Hanging Rock Charcoal, No. 1., 16.00 @	16 5
Hanging Rock Charcoal, No. 2., 15.50 @	16.00
Tennessee Charcoal, No. 1 13.00 @	18.50
Tennessee Charcoal, No. 2 12.00 @	12.50

No improvement is reported in the St. Louis Pig Iron market so far as prices are concerned, although the demand for Iron is decidedly better. Sales during the past week will foot up about 5000 tons, divided among the car works, stove foundries and architectural works. The demand runs largely to No. 2 Foundry and No. 1 Soft, with occasional sales of Gray Forge. The redeeming feature of the market is the general acceptance of Iron by consumers, who continue to take it as fast as shipped, which indicates that they are melting considerably more Iron than they were 30 days since. The general opinion is that a good volume of business will be in order without any improvement in prices during the balance of the year. We quote as follows for eash, f.o.b. cars St. Louis:

### Metal Market.

Pig Tin.—Prices fell sharply early in the week, the decline on wholesale lots of spot stock being 0.20¢ @ 0.25¢, on October delivery about the same and on later deliveries 0.25¢ @ 0.30¢. Speculative dealings on the decline were quite heavy. The market strengthened later in the week, futures going at 0.10¢ above lowest figures. Purchases by outside dealers and consumers have been on a liberal scale, making in all a large volume of business. The large selling was chiefly by operators in touch with the conflicting interests in Europe, and suggests that the foreign syndicate is more inclined to reduce than increase their holdings. There is superficial evidence of manipulation, such as is sometimes resorted to for the purpose of enabling large holders to realize some profit. Prices of small lots of Straits Pig are unchanged at about 174¢ \(\vec{\pi}\) lb.

Copper.—Dealings have been much smaller the past week than they were during the preceding one. The demand has been lighter also, and the market has a very tame appearance. Sellers offer reservedly, however, and claim that the statistical position is still in their favor. If sales have been as large as reported during the past two or three months it is safe to presume that home consumers and exporters are supplied for the balance of the year. The price of Lake Ingot in small parcels from store shows no change. Manufactured Copper is in very fair demand and prices are quite firm

Pig Lead.—Only a moderate business has been effected during the week under review, and buyers generally appear indifferent about anticipating future wants to any great extent. Prices for small lots from store are rather easier, American Pig being quoted by jobbers at  $3\xi \phi \otimes 3\xi \phi \otimes 1b$ . Lead Pipe and Sheet is in very moderate demand, prices in this section being firm as per list.

Spelter.—Dealings here have been moderate, but the market has a firmer tone, due to purchases in the West for other account than Eastern consumers. Prices for small lots of Western remain on a basis of  $4\frac{1}{4}\phi$   $\frac{2}{10}$  lb.

Antimony.—The market has remained steady, though quiet. Small parcels of Hallett's are quoted at 9½¢, and of Cookson's at 10½¢ plb.

Tin Plate.—The market Is in a somewhat uncertain condition pending the arrival of Plates by steamers overdue and those that have recently sailed from British shipping ports. Available

stock for current delivery is thus kept moderate and orders for some sizes and grades are very difficult to fill at the moment. Spot stock is in very fair demand, but there is only a larguid in-terest in future deliveries. The first frost has put a period to the operations of the canners, and the can makers have not yet shown any inclination toward providing themselves with fresh stock. Future business, in a word, is stagnant. The demand from the smaller consumers, however, has kept jobbers and re tailers quite busy. Both Bright and Roofing Plates in moderate lots are in request for immediate delivery. recent rains have searched out the leaks in roofs, while the adage respecting "an ill wind" has proved true to the advantage of the roofers and tinners during the recent heavy gales. class of consumers are very busy just now, and the aggregate of their requirements maintains a good movement in the sale of Roofing Plates, which has served to keep prices quite steady. Prices are, however, still somewhat irregular, and it is not likely that they placed on a settled basis for some little time to come.

A special London cable dispatch of October 10 to The Iron Age reports on the British Tin Plate market as follows:

The demand for Tin Plate has been restricted chiefly to small lines and special sizes. Rather more doing in Oil sizes, where sellers are willing to cut prices a trifle. Stocks at shipping ports now about 220,000 boxes and rapidly declining. Swanses quotations are as follows:

Bessemer Cokes, 1C	
Charcoals, tC	12/6

Black Plates and Wasters continue in very good demand.

Sheet Iron.—Reports from the mills mention generally full order books, with a difficulty in filling orders for prompt or near future delivery. Most manufacturers are entirely sold up for October delivery, and ask an advance on current prices where immediate ship ment is needed. Galvanized Sheets are in very active demand. Jobbers' quotatations are from 75 and 5% to 75 and 10% off.

# Chicago Report.

Scrap.—A large amount of Old Material has changed hands here during the past week, but most of it has gone direct from owners to consumers, and not through dealers' hands. Dealers quote the following list of buying prices, Chicago delivery:

• • • • • • • • • • • • • • • • • • • •	Per net ton.	Per Th
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6,00	
Malleable Cast	5.00	
Stove Plate (free of burn	4.00	• • • •
Brown late (1166 of Durn	t) 4.00	
Burnt Iron and Grate Ba	rs 3.00	
Sheet fron and Hoops	. 2.00	
Plow Steel and Break	ing	
Stock	4.00	
No. 2, such as Shovels, He	008.	
&c	3.00	
Old Boilers-whole (Iron)	3,00	
" (Iron)—cut in sir	igle	
Sheets and Ring		****
Old Gas-Pipe and Bo	iler	
Tubes	5.00	
Cast Boringa	3,00	
Turnings	4 00	••••
Horseshoes.	7 00	
Course Rottoms	7.00	::::
Copper Bottoms.	• • • • • • • • •	53/64
Copper Clips and Heavy.		7 ¢
Heavy Brass		51/4¢
Light Brass		3 1
ripe Lead		2/10
168 Feed		2 4
Zinc		2 4
Rubber		33/1
		12/4

Anthracite.—Business is a great deal better owing to the colder weather, and prices are very firm. Carload lots of 12 net tons or over are quoted as follows:

	Egg, Sto		
	Grate.	and Ch	
Chicago, Ill	<b>\$</b> 4.75	<b>\$5</b> 00	
Milwaukee, Wis	4.75	5.00	
Kausas City, Mo	7.95	8.29	
Council Bluffs, Iowa	7,95	8.20	
Lincoln. Neb	8.10	8,35	
Sioux City, lowa	7,95	8.20	
Aberdeen, S. Dak	8,00	8.25	
Dubuque, lowa	6,05	6.30	
Madison, Wis	6.25	6,50	
St. Paul, Minn	7.25	7.50	
Burlington, towa	6,25	6.50	
Des Momes, lowa	7.70	7.95	
Davenport, lowa	6,05	6 30	
St. Joseph, Mo	7.95	8.20	
Leavenworth, Kan	7.95	8.20	
Omaha, Neb	7.95	8.20	

### Colorado Anthracite.

OOLORADO FUEL & IRON COMPAI	VY.
Denver	\$8.00
Pueblo	8.00
Colorado Springs	8.00
Leadville	8.00
Cheyenne, Wyo	10.00
Cheyenne, Wyo	
Missouri River	8.85

### CONDITION OF THE

# Hardware Trade.

THERE is a good deal of unevenness in the market, not only in the matter of prices, of which the trade are well aware, but also in the volume of current business. This feature of the situation is illustrated in the fact that some houses report September trade as nearly, if not quite, up to that of 1892, while the large majority of concerns are justified only in referring to business as somewhat in excess of 1893. In certain bues of goods, Builders' Hardware, for example, there is a less active demand than for others, while seasonable goods and some kinds of staple Hardware are moving more freely. Business is also much better in some sections of the country than in others, and at the present time there is no doubt that trade in the South, especially the Southwest, is in a gratifying condition. Reports from New York State trade are not very satisfactory and in New England there is also complaint of sluggish business, and collections in many places are difficult. On the whole the volume of trade is moderate and a little spasmodic and irregular. A large amount of goods in the aggregate are changing hands, and the retail merchants are sorting up their stocks with a little more liberality than for some time. They are still buying cautiously and the stocks in dealers' hands continue low.

Advices from Chicago.—The demand for Shelf Hardware is running about the same as it has been, but here and there a note of complaint is heard. Most jobbers, however, say that they expect somewhat of a falling off at this time of the year, being between seasons. The philosophical are extracting comfort from the situation by believing that it means heavier business after a while. They think that if merchants should stock up now they would carry the goods on their shelves until spring and be unable to pay for them, and therefore it would be considerably better for the jobbing trade to pass through a comparatively quiet time from now until the spring trade begins and then have it come along with its old time vigor. The impression seems to prevail quite generally that spring business will be as heavy if not heavier than usual. The only matter of consequence transpiring during the week was the settling of Tin Plate prices. Jobbers have now pretty

well agreed upon a price of \$5.75 as a basis for Calland and Melyn grades, \$5.50 for Allaway, \$5 for Bright Coke Plates, \$10 for Terne Plates, Mansel grade, and \$10.50 for Worcester brands. The demand for staple goods is fair, except for Barb Wire, in which trade is quite light.

### Notes on Prices.

Wire Nails. - The Wire Nail market is in a peculiar and not very confident position. The price of \$1 for carload lots at mill is quite regularly maintained, though in some cases where Nails are delivered the manufacturers realize something less than this figure. The volume of business is not especially large, as buyers are waiting to see what the developments of the market may be and whether the manufacturers succeed in eliminating the disturbing influences which to a greater or less extent have been felt for the past month or two. It would seem that as yet their efforts in this direction have not been entirely successful. The mills are nearly all of them fully occupied on orders and report that the amount of current business is fair. The New York price continues \$1 25 to \$1.30 from store.

Advices from Chicago.—Inquiries are light. The developments of the past two or three weeks have evidently scared buyers and they are now waiting to see whether the market has settled, being unable to determine just what course to pursue. Jobbers report a good demand for small lots from stock, but have reduced their quotations and now name \$1.10 to \$1.15 for such lots.

Cut Nails.—The movement of Cut Nails, while not especially heavy, is fair, and manufacturers in view of the general business condition are not disposed to complain. Prices are well maintained. The competition of Western mills is active, but the Eastern manufacturers are holding their territory pretty well. Small lots from store are held at \$1.05 to \$1.10 with the usual average.

Advices from Chicago.—This trade is moving in about the same condition as reported last week. The demand on manufacturers is quite good, but runs only to small lots. Jobbers have slightly reduced their prices out of stock and now quote small lots at \$1.05.

Barb Wire.—The Barb Wire market is sluggish and the demand light and spasmodic. Four-Point Galvanized is quoted as follows, delivered at the points named in carload lots: Pittsburgh, \$2 to \$2.05; Cleveland, \$2 05 to \$2.10; Cincinnati, Allentown, Chiago or New York, \$2 15 to \$2.20.

Advices from Chicago. — Manufacturers report that a few orders are being entered for spring delivery, but this business is by no means up to expectations. The carload trade for early delivery is quite light. Jobbers are selling small lots of Galvanized from stock at \$2.25, but report that very little is moving at present.

American Bolt Company.—The following quotations, which we have received from the American Bolt Company, Lowell, Mass., will be of interest as indicating the ruling prices on the goods made:

	Discount,
	Per cent,
Machine Bolts	85 and 10
Pipe Bolts	85 and 10
Loom, or Cuphead Bolts	75 and 10
Tap Bolts	80 and 20
Forged Set Screws	80 and 20
Blank Bolts	85 and 10
Bolt Ends	85 and 10
Hanger Screws	80

e5 and 20 t
Lag Screws
Coach "gimlet points S and 10
Set " irou70 and 10
1. 10 and 10
Down I and Fillitur Hand Can Screws
Square Head Cap Screws         .65 and 10           Hexagou         .60 and 10           Rough Stud Bolts         .75           .65 and 10         .65
Square Head Cap Screws
Hexagou "
Rough Stud Bolts
Pressed Iron Turnbuckles
Milled from States
Concline Polts
Coupling Dotts
Track 15, %/16, % So and 10 Cents per lb.
Cents per to:
Square and Hexagon Nuts, U. S. S. sizes,
Chamfered, Trimmed and Drilled
Square Nuts, U. S. S. sizes, plain
Dergoon "
Course Note Manufacturers Standard.
Square Nuts, manufacturers , small
Chamfered, Trimmed and Drilled
Square Nuts, Manufacturers Standard.
G., T. and D  Hexagon Nuts, Manufacturers' Standard, plain
Hexagon Nuts, Manufacturers' Standard.
plain
Heregon Nuts Manufacturers Standard.
C., T. and D
Square Nuts, extra sizes, plain5.6
Square Nuts, extra sizes, plain.
cuppe (
Hexagon Nuts, " Plain 3.5
Hexagon Nuts, " cupped
Check and Jam Nuts 55
l'er cent.
Tapped Nuts
Pini had and Cosa Hardened Nuts to 11.
Fillished and Case Hardened Page 19, 1
inches
Finished and Case Hardened Auts to 1%
inches and larger
Semi-finished Nuts to 14 inches70
" 18, " and larger, 60
Cents per 1b.
Plate Washers.
Time masters
Square "5.6
Empire Stencil Dauber - Empire
Purhite atencii panori Taphao
Forge Company, Lansingburg, N. Y.,

Empire Stencil Dauber — Empire Forge Company, Lansingburg, N. Y., are manufacturing this article, which was described in our last issue. The Dauber is sold to the trade at \$12 per gross, subject to a discount of 25 per cent.

Stove Boards.—The following are the prices for the present season on Stove Boards manufactured by the American Stove Board Company, 206 Water Street, New York, and 110 Ontarlo street, Chicago. The prices named are subject to a discount of 2 per cent. for cash.

No. 70, Round, Wood Lined, Crystal, ln. diam...... 27 30 83 36 Each....... \$1.02 1.14 1.26 1.38

No. 80, Square, Wood Lined, Crystal. Inches.  $26 \times 26 = 28 \times 28 = 30 \times 30 = 33 \times 33 = 36 \times 36$  Each . . . \$1.02 = 1.14 = 1.26 = 1.38 = 1.50

No. 90, Oblong, Wood Lined, Crystal. Inches. 24 x 36 26 x 32 28 x 34 20 x 38 32 x 42 Each... \$1.14 1.14 1.26 1.38 1.50

No 10, Round, Wood Lined, Oxidized. In. diam..... 27 30 33 36 Each....... \$1.08 1.20 1.32 1.44

No. 20, Square, Wood Lined, Oxidized. Inches,  $26 \times 26 \times 28 \times 28 \times 30 \times 30 \times 30 \times 35 \times 36 \times 36$  Each... \$1.14 - 1.26 - 1.38 - 1.50 - 1.62

No. 30, Oblong, Wood Lined, Oxidized, Inches, 24 x 36 26 x 32 28 x 34 30 x 38 32 x 42 Each. \$1.26 1.26 1.38 1.50 1.62

No. 800, Square, Wood Lined, Embossed. Inches. 26 x 26 28 x 28 30 x 30 33 x 33 36 x 36 Each... \$0.96 1 08 1.20 1.32 1.44 No. 900, Obrong, Wood Lined, Embossed.

Inches, 24 x 36 26 x 32 28 x 34 30 x 38 32 x 42 Each... \$1.05 1.08 1.20 1.32 1.44

No. 40, Round, Paper Lined, Zinc.
In. diam... 24 26 28 30 32 34 36 58 Each.....\$0.48 .54 .60 .66 .72 .78 .84 .90

No. 50, Square, Paper Lined, Zinc.

Inches... 24 x 24 26 x 26 28 x 28 30 x 30
Each ... \$0.54 .60 .67 .75
Inches... 32 x 32 34 x 34 36 x 36
Each ... \$0.86 .97 1.08

 No. 60, Oblong, Paper Lined, Zinc.

 Inches.
 22 x 34
 24 x 36
 26 x 30

 Each.
 \$0.60
 .72
 .72

 Inches.
 28 x 32
 30 x 36
 32 x 42

 E ach.
 \$0.78
 .90
 1.00

No. 100, Round, Paper Lined, Crystal. In. diam... 24 26 28 80 32 34 36 Each...... \$0.54 .60 .66 .72 .78 .84 .90

No. 300, Oblong, Paper Lined, Crystal. Inches,  $24 \times 36/26 \times 30/28 \times 32/30 \times 36/32 \times 42$ Each... 80.78, 78, 90, 1.02, 1.15

 $\begin{array}{ccccccc} No. 55, Square, Paper Lined, Em^tossed, \\ lnehes & & 24 \times 24 & 26 \times 26 & 28 \times 28 & 30 \times 30 \\ Fach & & 80.54 & .60 & .67 & .75 \\ lnehes & & & 32 \times 32 & 34 \times 34 & 36 \times 36 \\ Each & & & & 80.86 & .97 & 1.08 \\ \end{array}$ 

No. 65, Oblong, Paper Lined, Embossed, Inches,  $24 \times 36 \cdot 26 \times 30 \cdot 28 \times 32 \cdot 50 \times 36 \cdot 32 \times 42$  Each... \$0.72 - .72 - .78 - .90 - 1.00

New Era Axle Sash Pulley.—This Pulley was described in our last issue as put on the market by the Empire Forge Company, Lansingburg, N. Y It is sold to the trade from the following list, which is subject to a discount of 65 per cent.:

Plain Face, Plain Wheels,

Face Plate, Sq. End.

Plain Face, Ground Wheels.

Plain Face, Plain Wheels.

Face Plate, Rd. End. No. 0411, 134-inch wheels,  $\frac{4}{4}$  x 1 inch .50 No. 0412, 2-inch  $\frac{4}{4}$  x 1 inch .55

Plain Face, Ground Wheels.

Face Plate, Rd, End.

No. 0411,  $1_{34}^{\circ}$ -inch wheels,  $4 \times 1$  inch .53 No. 0412, 2-inch  $4_{12} \times 1$  inch .58

Cordage —The Cordage market is on the whole in not so satisfactory a condition as for the past month or two, the demand being light and prices showing symptoms of weakness. At though no reductions have been made on Manila and New Zealand, Sisal has been reduced 4 cent per pound.

Glass -The past week has witnessed no change in the condition of the American Window Glass market, either in demand or prices. Trade continues about the same, with no indication of the increase in business naturally ex pected at this seas in of the year. There is a lack of uniformity in the prices made by jobbers in different parts of the country, but Pittsburgh factory the country, but Pittsburgh factory prices remain 88 per cent. discount for single and 90 per cent. discount for double, in lots of from 3000 to 5000 boxes, with 24 per cent. additional discount for cash in either strength. As reported last week New York importers adopted a revised list on foreign Glass, from which a discount of from 60 and 10 and 5 to 70 per cent. is allowed. A discount of 70 per cent, from the new list is about equivalent to 80 and 10 and 10 and 5 per cent. discount from the former list; which latter price, it is understood, Boston importers are selling at, from the old list. The Plate Glass trade continues encouraging, and factories it is recentled. tories, it is reported, are well sold up, although the tendency is to vard lower prices. The average prices in New York and New England are stated to be 70 and 10 per cent. discount on sizes 5 feet and over, and 75 and 10

per cent, discount on sizes under 5 feet, from the Distern list. From Western manufacturers' list reported discounts are 70 and 10 and 5 per cent, discount on sizes over 10 feet, and 70 and 10 per cent, discount on 10 feet and less.

Old Metals —Prices show no radical change, the following quetations representing about the rates now paid by dealers in New York:

Heavy Copper 1 Ib 6140
aight and Tinned Copper P b 6
Heavy Brass 1 4136
Light Brass W R 3846
Lead
Tea Lead # 1b 21g#
%inc ₩ 15 2 ¢
No. 1 Pewter ₩ Ib 10 ¢
No. 2 Pewter
Wronght Scrap Iron. @ gross
ton \$7.50 at \$5.00
Heavy Cast Scrap & gross
ton
Stove Plate Scrap F gross ton 5.00
Burnt Iron P gross ton 3.00

Old Rags, Paper, &c.—Pcices paid by dealers, New York delivery, are quoted as follows:

	No. 1 White Rags				31/6	
	No. 2 White Rags	P	178	(4		
	Mixed Rags₩	Ъ			8/10	Þ
	Blues and Sds	D	1	0	11/4	t
	Hard Sized White Shavings	Ъ	21/	ä	2366	ŧ
	No.1 White Book Snavings #	Ъ			23,5	
	No.2 White Book Shavings	Ъ			11/4	
	Light Book Shavings ?	Ъ	. / 0	6.3	66	
	No. 1 Mixed Shavings	L	74	a		
	No. 2 Mixed Shavings	D				
	No. 1 Printed Books	В	1 "		11/2	
		IP.	-	(4)		
	Ordinary Mixed Books		79	@	2-50	
	Newspapers	Ъ	8/	_		
	No. 1 Manila Paper	В		Ø	1	
	No. 2 Manila Paper	Ъ	%	a	8/4	7
	Bogus Paper	D			36	
	Common Paper	Ъ			14	
	Straw Chips	Ъ			3/4	¢
	Binders' Clippings₩	D			36	¢
	Jnte Butts#	Ъ			17/8	¢
	No. 1 Jute Bagging	Ъ			1	¢
	Mixed Bagging	D	8/	0	1	¢
	No. 2 Bagging	D			34	
ı	Hemp Twine	Ъ			2	
	Manila Rope				23%	
	Jute Rope				184	
		D			- 5%	
	Mixed Rope₩	ш	74	(iv)	78	۳

Old Rubber.—Dealers' purchasing prices N\_w York delivery, are about as follows:

Car Springs, ton lots, 7 b	Ø	\$0.031/4
Rubber Shoes, carloads, de- livered at factory, # b		
Rubber shoes, less than car- loads, #2 lb		
Large Hose, # ton	a	15,00
White Wringer Rolls, & D	0	.03%
White Syringes, W Ib	0	.03%

### Trade Notes.

THE ENTERPRISE FOUNDRY COMPANY of Rochester, N Y, send us a neat folder calling attention to the Columbia Radiator, which they manufacture for use in houses or offices. The merits of the Radiator are clearly set forth and a price-list given showing the sizes and finish in which it can be supplied to the trade.

THE FIRM of Merry & Clark, importers of and dealers in Tin Plate and Metals, 535 West Fifteenth street, New York, have dissolved. Geo. E. Merry will continue the business at the same address, under the firm name of Merry & Co.

An increasing demand for the American Ash Cars and Oily Waste Cans is keeping the galvanized sheet iron department of the American Samping Company, 104 John street, New York, running full. The Ash Cans are made in different sizes with heavy wrought iron bottom and with the sides stiffened. The Oily Waste Cans have a self closing lid and are mounted on feet to increase their safety.

PAGE.

I THE NUTMEG ARTESIAN WELL COMPANY is the name of a new concern in Waterbury, Conn., with an effice at 120 Bank street. As their name implies, the firm were organized for the purpose of digging artesian wells and the partners are W. P. and H. S. Jarrett. At present the company are drilling wells for the Methodist parsonage, Postmaster C. B. Atwood and Chas. Lockwood in Watertown, one for Seeley & Upham in Waterbury and several others.

In another part of this issue will be found the announcement of a special sale of Granite Ware by E Bissell, Son & Co., auctioneers. The sale will take place at 12 Murray street and 15 Park place, New York, on Friday, October 19, at 10 o'clock in the morning. goods consist of several thousand cases of Granite Iron Ware, and the sale is made by order of the St. L uis Stamp ing Company. The auctioneers will also sell, by order of the manufacturers, also sell, by order of the manufacturers, 300 Victor and 100 Columbia Parlor Gas Heaters, all with Russia iron bodies and highly polished nickel plated bases and tops. There will also be sold a large line of planished Tea and Coffee Pots with copper bottoms. The entire catalogue together with duplicates will be sold without reservation in quantities to suit the jobbing trade, department stores and the retail trade. The catalogue for the sale will be ready on Saturday, October 13.

S. Bernstein is traveling on the Pacific Coast in the interest of the Instantaneous Water Heating Company and the Brownhill Company of Chicago. These companies make the Douglas Instantaneous Water Heater, which is growing in popularity with both the people and the plumber, and the Perfect Gas Controller, which is not less popular as a light improver and a gas bill reducer.

The Fenracute Machine Company, Bridgeton, N. J., manufacturers of Presses and Dics, are quite busy in their shops, running with a good force and on full time. They are building several large Presses, among others being a very heavy double crank Cutting Press for the General Electric Company of Schenectady, also another heavy double column Press for a firm in Clevelsnd for embossing ceiling plates, &c. They are also building several special machines for the Standard Oil Company, which are to be shipped to Mexico. Orders for Cutting and Punching Presses are coming in frequently, and prospects for a good fall trade are better than for some time past.

THE CHAPMAN VALVE COMPANY of Indian Orchard, Mass., are building an addition to their foundry, making the latter 185 x 120 feet in size. It is stated that about \$25,000 will be apent on the building and new machinery.

WE HAVE RECEIVED a catalogue and price-list of the Buffalo Meter Company of Buffalo, N. Y., makers of Water Meters. This Meter is of the disk type. It is stated to be especially sensitive at small flows.

MERCHANT & Co., 202 Lake street, Chicago, state that their Tandem Continuous Roofing Tin, which is put up in rolls of 100 square feet, is in such demand that they have been unable to lay in a stock of it. Shipments are made on back orders as rapidly as the Tin is received from the factory. A second machine has now been erected in the factory at Philadelphia, and the trade will soon be supplied more promptly, unless operations are inter-

fered with by the labor troubles in the black plate mills furnishing the sheets for coating. This Tin is put up in three widths—namely, 14, 20 and 28 inches.

Rochester Lamp Company, 42
Park place and 37 Barclay street, New York, are just issuing their third export catalogue of Rochester Lamps in a great variety of styles and designs. This pamphlet has 40 pages, 15½ x 12¼ inches in size, profusely illustrated, and is bound in an illuminated stiff paper cover. It is printed in both the English and Spanish language on each page. One of the features of the catalogue is the line of New Rochester Lamps, said to be new in every particular, especially the wick movement, cone, chimney lift, overflow in dicator and improved burner, which gives a double tlame and increased combustion. A full assortment is shown, including varieties of Hand, Parlor, Table, Store, Banquet, Piano, Student, Hall and Library Lamps, together with Chandeliers, Bracket Lamps, Lanterns, Street Lamps, Oil Stoves and Heaters, Bicycle Lamps, Lamp Shades and Forms, with a number of kindred specialties. There are also Onyx Cabinets and Tables, both with and without Lamps.

### ODD PLATES.

(Continued from page 60.)

The Smith & Anthony Company seem to possess the happy faculty of getting their Hub ranges to the front whenever there are any cooking schools or food exhibitions under way. Their new Royal Hub range is now being used exclusively at the World's Food Exhibition at the Mechanics' Building in Boston. The leading cooking experts like Mrs. Dearborn, Mrs. Lincoln, Mrs. Barrows and others, are here giving almost daily demonstration lectures with the Royal Hub range as an auxiliary. The manufacturers feel very much complimented by the repeated selection of their Hub ranges for these great public tests.

THE ECONOMIC SMOKE PREVENTING FURNACE COMPANY is the name of a new corporation at Chicago, with a capital stock of \$200,000. The incorporators are William H. Braine, John W. Chaffee, Proctor K. Malin.

THE J. D. SMITH FOUNDRY SUPPLY COMPANY of Cincinnati, Ohio, have issued from the press a supplementary catalogue, known as No. 22, and relating to tumbling barrels and exhaust fans. The goods are fully described and carefully illustrated, the various patterns being presented in such a way as to clearly show the essential features. There is also presented an interior view of a building, showing a good arrangement for placing a number of tumbling barrels and the manner suggested by the company for making the exhaust connections. Attention is also invited to sand blast apparatus for cleaning small castings, forgings, &c., as well as removing the scale from steel and iron plates. Accompanying the supplementary catalogue are loose sheets illustrating some of the minor specialties of the company.

THE DAYTON MFG. COMPANY of Dayton, Ohio, have recently purchased from the Covington (Ky.) Brass Mfg. Company all the material, tools, machinery, patterns, &c., used in the manufacture of the Insurance gasoline stove, and have also contracted with A. J. English & Co. of Cincinnati to secure the exclusive right to manufact-

ure this stove under all patents owned and controlled by them. This wil form an important addition to the company's plant, and there is in course of construction a three-story brick building, 63 x 120 feet, in which the new industry will be carried on.

A PRESS DISPATCH from Cleveland, Ohio, states that the establishment of the Cleveland Foundry Company of that city, makers of gas and oil stoves, was burned out on October 10. The lose is placed at \$110,000, about 80 per cent. of which is said to be covered by insurance.

### CONTENTS.

Editorials:

Theater Ventilation	45
Methods of Supply	45
The Welsh Tin Plate Situation	45
The Tin Shop—	
Pattern for Article Rectangular at One	
End and Round at the Other. Illus .	46
The Baron De Hirsch Trade School	47
Preparation of Chromium	47
The Letter Box—	
A Smoky Fire Place, Illustrated	48
Carpenters' Gauge. Illustrated	48
Action of Copper on Tin	48
Sims' Patent Gutter	48
Plumbing and Gas Fitting-	
Plumbers and the Health Association	49
A Clean Ont Urinal Spray. Illustrated.	50
An Eel in the Corporation Tap	50
•	50
Traps and Vents	51
Carrying Electricity on the Person  Tin Plates—	JI
A Unique Gateway. Hlustrated	52
	53
Scrap	00
The Retall Store— New Ideal Oil Heaters. Illustrated	54
Self Pouring Oil Can	54
Seythe Rack. Illustrated	51
Cast Steel Garden Weeder. Illus	54
Steam and Hot Water— On Heat Lost by Roofs. Illustrated	55
	55
Heating Notes.	JU
Heating and Plumbing-New Work and	56
Contracts	56
Roofing and Cornice—	
Laying Gravel Itoofs	57
Flashings	57
Stove Trade Notes-	
The Ohio Stove Trade	58
Walker's Culinet Range. Illustrated	58
Stove Freight Rates in the South	59
Odd Plates 59	, 64
Trade Report—	
The Iron Market	61
Metal Market	61
Chicago Report	62
Condition of the Hardware Trade	63
Notes on Prices	62
Trade Notes	63
Metal and Miscellaneous Prices	65
Labor Exchange-	
Help Wanted	67
Situations Wanted	67

# THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, October 20, 1894.

DAVID WILLIAMS, - PUBLISHER

### BUSINESS OFFICES:

NEW YORK98-102 Reade Street.
PHILADELPHIA220 South Fourth Street.
BOSTON146 Franklin Street.
PITTSBURGH Room 509 Hamilton Building.
CIIICAGO,59 Dearborn Street, cor. Randolph.
CINCINNATIRooms 22-24 Pickering Huilding.
ST. LOUISBank of Commerce Building.
CLEVELANDS12 The Cuyahoga.

BRITISH AGENCY: The 1roumonger, 42 Cannon street, London, England.

### Naming Tin Plates.

At a time in the history of the American tin plate manufacturing industry when new brands of tin and terne plates are increasing and multiplying on all sides, it may be well to call attention to a matter, which, though apparently trivial in itself, is nevertheless of sufficient importance to merit a word of warning and advice. We refer to the vicious practice which has been adopted to a certain extent among the Welsh tin plate workers, of branding plates by symbols or geometrical figures in place of names. It is a most inconvenient way of designating tin plates. Such marks are difficult of description in conversation or correspondence and also to display in print. Plain names of an appropriate natureand the plainer and more easily decipherable they are the better-are abundant enough to provide a varied nomenclature for all the tin plates that are ever likely to be made in America, without resorting to fancy devices. We trust the American manufacturers may continue to stick exclusively in naming the products of their works to plain, easily pronounceable words. Life is too short and time is too valuable for the ordinary business or trades man to waste either in the wholly unnecessary endeavor to describe a special brand of tin plate by the fancy mark on it, whereas he can do so in one word in cases where the brand is sensibly and properly named.

### Rules for Hot Air Heating.

A seasonable article that will be read with more than ordinary interest by the furnace heating trade appears elsewhere in this issue, under the title, "Determining Size of Pipes and Registers to Heat Given Amount of Space." The author, Geo. D. Hoffman, has had much experience in the work of furnace heating, and treats the matter in a clear, concise and intelligent way,

that will appeal to the practical men | of the trade. It is a frequent source of complaint that, while with steam and hot water heating the surfaces and mains can be figured out by well-tried rules, in hot air heating the proportioning of pipes and registers is largely a matter of individual judgment, and. as a matter of fact, a great deal of work is laid out according to the guesses of the contractor. While it is true that if based on a long experience these guesses may be approximately correct, is is nevertheless highly desirable that definite rules be established for determining the diameters of heater pipes and the size of registers. Rules of this sort are given by Mr. Hoffman, and we hope that our wideawake and progressive readers will compare them with the rules they employ and let us know how they agree, for a discussion of this kind will be of great interest and benefit. It is time for the furnace trade generally to follow more exact rules in their work and not depend upon the empirical methods that have been in vogue.

### Unsanitary Bake Houses.

One of the New York City dailies has recently been showing up the unsanitary condition of certain bakeries in New York and Brooklyn. The statements published, while of a somewhat sensational nature, are nevertheless supported by a number of illustrations of different bake houses from photographs taken on the spot. These photographs give a sufficiently startling impression of the condition of some of these places. They depict uniformly filthy subterranean dungeons infested by vermin, without natural light or any means of ventilation, and having absolutely no sanitary facilities. In one of these cellar bakeries is seen an open utensil which is used as a urinal. In two others are frowsy looking, unmade beds with dirty coverings; in others again insects are seen crawling on the wall, while the whole series of pictures reveals a general condition of dirt and unwholesomeness. All the disgusting features are in close contact with the tubs in which the bread sold in the store above is being made. It seems hardly credible that such a state of things should exist in these cities at this time. Yet the testimony is very circumstantial and should be thoroughly sifted by the health authorities, with the view of the suppression of such dangerous and disease breeding establishments. Meanwhile, it behooves those who buy baker's bread to satisfy themselves of the cleanliness and the general sanitary condition of the place in which it is made.

A Welsh Conspiracy.

English papers, led by the Temes, are fooling themselves with the belief that if any large proportion of the Welsh tin plate workers now in the United States can be induced to return home the American industry will be para lyzed. To accomplish this end a meeting of Welsh tin plate makers was held recently at the Swansea Exchange. when the matter was discussed and steps were taken to ascertain whether any of the men are inclined to return to Wales. It is thought that the shutting down of most of the American tin plate works pending adjustment of the wage scale, the news of which was, of course, joyfully received across the water, will throw a number of the Welsh tin platers out of employment, and that these men will be glad to return to their native country. The Welsh manufacturers are, in the meantime, warned by the British press to decline, for the present, in their own interests, any further American orders for black plates. It is contended that the American makers, foreseeing a long struggle over the wage question, "are endeavoring to keep their engagements by obtaining from Wales a sufficient supply of black plates, which they can tin by mechanical process and put on the market as American make." The warning does not seem, however, to have been much heeded by the Welshmen, for the Swansca Daily Post, in a recent issue, says that Welsh manufacturers are booking large orders for black plates received from the United States, and a case is mentioned in which the order for 500 tons was accepted by a local maker quite lately. "Such action," the Post claims, "if persevered in, must defeat the efforts now being put forth to impose a serious check on the infant industry in the States." The infant industry referred to is already too vigorous a stripling to be strangled by any such methods as those proposed above.

"Engraving by dynamite" is a somewhat startling aunouncement. And yet this process is actually carried out, if we may rely on the account given in a technical journal. It appears that this method of engraving is not adopted as a regular trade method, but is rather used in the nature of an experiment by those whose business it is to test the strength of dynamite, gun cotton and other high explosions. other high explosives. Fresh plucked leaves are placed between two plates of highly polithed ateel and cartridges are exploded on the upper plate. The rerecoil is so great and sudden that the upper plate is driven downward with auch force and rapidlty as to catch exact impressions of the leaves before their delicate ribs have time to be crushed by the force of the blow.

# THE LETTER BOX.

### Hard Worked Pump.

From P. H. W., Poughkeepsie, N. Y.—In the reply to "G. W. G." of Pawling, N. Y., under the head of "Hard Worked Pump," in The Metal Worker of October 6, it is stated that it would be impossible to lift water 36 feet, as shown in the drawing. In this I am prepared to disagree with you. Judging from the drawing, the object of the contractor was to avoid deep excavation. Taking into consideration the extreme length of the discharge and suction pipe, he should have increased the diameter of the pipe at least three sizes. If "G. W. G." will increase the size of discharge pipe (he cannot make it too large within reason), then increase the size of the suction pipe, filling the suction pipe before starting the pump, he can lift water 36 feet. The suction represents a reverse siphon which does not increase the lift over the 10 feet stated

Note.—It is a well established fact that atmospheric pressure alone will not force water higher than 34 feet. To raise water from a greater depth the pump rod must be lengthened so as to bring the piston well within the limit mentioned.

### Concerning Underclothing.

From G., Philadelphia.—I have several employees who desire to dress well, but their business calls them into boiler rooms and hot kitchens where the temperature is so high that they perspire very freely and destroy their good clothes. Can you recommend any preparation which might make underclothing water proof and so that it would not give off offensive odors when heated, and, furthermore, would not destroy the fabric? It would have to be sufficiently water proof to prevent the perspiration from striking through.

Note. - This inquiry is somewhat outside the province of The Metal Worker. but there are no topics that are not pertinent to the Letter Box. We suggest that our correspondent find some other means of overcoming this disagreeable feature of working in hot places. Undoubtedly, underclothing can be made water proof, or better still, it could be manufactured of water proof material. It must be borne in mind, however, that a material that will not let water through would be equivalent to dressing in rubber throughout. It might result in saving the clothes, but it would be practically impossible to work in it because of the discomfort. We do not think our correspondent will be successful in remedying the difficulty in the way he suggests. The only means of meeting the trouble is to wear heavy woolen underclothes, which absorb moisture like a sponge, and will thus prevent the destruction of the

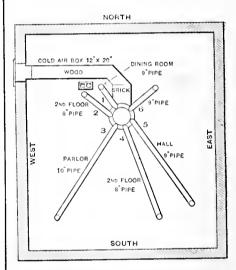
other clothes and at the same time not interfere with a natural secretion. Perspiration is the means taken by nature to relieve the excessive heat of the body, and any one who has had to travel much in rubber clothes knows how exceedingly unpleasant such garments are. Our correspondent must bear in mind that the office of the skin is a very important one, and he may have forgotton the case of the little boy in olden times who, to take part in some gorgeous pageant, was completely covered with gold leaf. The boy was a pretty sight for a little while, but the experiment killed him very quickly. Stopping up the pores of the skin is as effective a means of producing death as closing the windpipe with a hangman's

### An Unsatisfactory Furnace.

From C. F., Natick, Mass.—I send a sketch of a furnace job that does not give satisfaction, and would be glad to get some idea for making changes to get better results. The furnace is large enough, there is a good draft and the pipes have a rise of about  $3\frac{1}{2}$  inches in 8 feet, but the furnace does not seem to heat. Pipe No. 3 to the dining room heats very little; pipes 2 and 5 heat fairly, and the rest very indifferently. Pipe 4 is taken off from the front of the furnace over the furnace door.

Note. — From the plan and description presented it is improbable that specific information can be given for making the changes needed for better results, yet any suggestions our readers have to offer will be welcome. It will be well to search through the whole plant for anything that might interfere with the flow of hot air. The cold air duct has more turns in it than are desirable, yet a sharp turn is avoided. It should be air tight, and its dimensions should not be reduced at any point. From the fact that one part is brick it is possible that the furnace sets over a pit. If it does the pit should be as deep or deeper than the cold air duct and of the same diameter as the furnace casing. A pier should be built in the center of the pit about 12 to 14 inches square, with one corner pointing toward the entrance of the duct. This pier is for the ash pit of the furnace to rest on for support. . If the air duct connects with the casing it should preferably connect at the back, so that each side of the furnace will be supplied with air. Assuming that the furnace is put together properly, so that no air leaks would check the fire, there should be sufficient space between the top of the radiator and the top of the furnace for an air chamber, so that each

pipe may be amply supplied with air. A space of at least 6 inches should be provided, and more is better. The collars for the hot air pipes should be arranged to give the greatest pitch possible to the pipes, and if the collars are in the top they should be short and 45°, or round elbows should be used very short in the throat. It is sometimes better to make the top sunk in the center and high on the outside, so that the collars can be put in on the side. This throws the air to the outside, and it is easy to put partitions in the top to insure a flow of air into any or all pipes. The pipes should have a pitch of at least 1 inch to the foot, and more is better, but there is less than half this pitch in 31



An Unsatisfactory Furnace.

inches in 8 feet. It is natural that pipes leading to the hall and upper rooms have the best flow of air, and that a pipe over the ash pit and feed shute should be but poorly supplied. Pipes that run toward the north and west should always be shorter than those running in the opposite direction, and can be twice as long without disadvantage. In this respect the arrangement shown is not open to criticism. In calculating for registers their area should be twice the area of the pipes, as the newer designs used in register faces are not so open as the old patterns, which were figured one-third of the area off for the fret work. The register boxes should be ample in size, and so made as to aid the air in making an easy turn. Some means must be provided for the air in the rooms to be heated to get out or hot air cannot enter. A register of good size in the hall, with a pipe leading from it to the cold air pit or duct, and arranged with a shield or check valve, so that cold air

cannot come up, will aid in exhausting the air from the house to make room for the hot air.

### Tin Plate Terms.

From A. R., Newark, N. J.—I am a tinsmith and have handled a great quantity of tin, but do not and cannot, except by appealing to you, find out the difference between terme, charcoal, coke, bright and roofing plates. By explaining these terms in The Metal Worker, you will greatly assist me.

Answer .- We are not surprised that our correspondent has been puzzled by the terms used in the tin plate trade, for as we have often pointed out the words have little significance at present, and their meaning must be learnt the same as we would memorize the definition of some Greek word. In the beginning the words had definite application, but this has been lost through the changes in the process of manufacture. However, our correspondent asked for definite information and not for a sermon on the peculiarities of the tin plate trade. We would inform him, therefore, that a terne plate and roofing plate are the same thing. Both mean a tin plate in which the coating is largely composed of lead, giving it a comparatively dull appearance. A bright plate, oa the other hand, is, or should be, coated with pure tin and has a shiny surface. The terms "charcoal" and "coke" are now used to define the quality of the plate, and while they were formerly applied to both terne and bright plates, the words are now used only in connection with bright plates. The fine plates used for pieced tinware are known as charcoal tins, while the light coated bright plates, such as are used for canning purposes, are known as coke tins. We have not attempted to exhaust this topic, but merely give the information in a simple way so that our correspondent may no longer be confused by the terms.

### A Tin Roof Problem.

We are in receipt of a letter from the Kansas City Metal Roofing & Corrugating Company, Kansas City, Mo., respecting an article in the Letter Box of The Metal Worker of October 6, in which they refer to the necessity of getting a roofing eement that will not crack, and call attention to their elastic roofing eement, for which they claim particular merit. They also add that the recommendation to use coal tar is objectionable, as the sulphur and acid it contains are more or less injurtous.

From J. W., Wappingers Falls, N. Y.—If "B. J.," Indiana, will paint cloth strips over his standing seams, he will have a good and durable remedy for the leaky roof. He should use thin cloth for the purpose, cheeseeloth being a good article, although I should select shirting. It should he pasted on smooth with paint.

From O. R.—In The Metal Worker of October 6, in answer to "B. J.," Indiana, you advise him to paint his leaky atanding seams with tar, but I think

that is very bad advice. Tar put on tin in any way is injurious, and, further more, will not stand any length of time. If the roof was mine I would paint it up with white lead, putting on coats enough to make a sure job and being careful not to get too much on at one time. I think the leaks may be caused by the planking having shrunk. The seems should be gone over with iron and mallet, and if this was done at the same time the first coat was put on it is probable it would require nothing more.

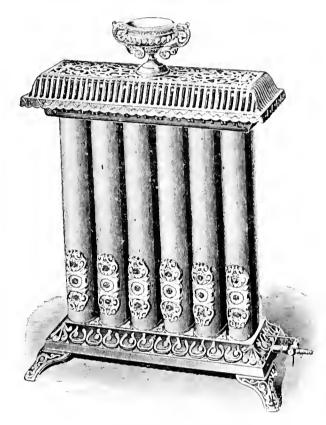
### Sims' Patent Gutter.

From Sims Meg. Company, Newark, Ohio.—We notice in The Metal Worker of October 13 a letter from "J. D. A.,"

into the first bath again. After that it is sufficient to put the aluminum in a solution of a salt of the metal, gold silver, &c., of which the coating is required. The layer is adherent and the metal can be soldered by the methods ordinarily employed.

### The Cort Gas Radiator.

The illustration presented herewith shows a new gas radiator that is being put on the market by J. H. Cort & Son, Adams and Water streets, Brooklyn. N. Y. In appearance the radiator is made attractive by symmetrical outline and the treatment of the cast iron parts.



The Cost Gas Radiator.

Remington, Ind. We wish to inform him that the Sims Mfg. Company of Newark, Ohio, are sole proprietors of the patents and sole manufacturers of the Sims patent gutters.

# Sheet Metal Patterns.

From M. D., Brooklyn, N. Y—Please inform me through the Letter Box where I would be able to obtain the sheet metal pattern plates that have appeared in The Metal Worker:

Answer.—If our correspondent wishes a work on pattern cutting, we would refer him to "The Metal Worker Pattern Book," published at this office, price \$5, which includes many problems similar to those that have appeared recently in The Metal Worker.

A process for coating aluminum with other metals, the discovery of Herr Neesen, is thus described: The aluminum is cleaned by plunging it in a bath of hydrochloric acid or of caustic soda. It is then immersed in a solution of bichloride of mercury, which decomposes and amalgamates the surface of the aluminum, which is then plunged

The base which supports the planished iron heating tubes is handsomely ornamented and the easting at the top is of an equally attractive style. At the base of the heating column an ornamental casting is used as a setting for colored glass jewels, through which the gss thames send the light in many colored rays. A handsome urn la used as a top ornament of the radiator and is designed to hold water to be evaporated to supply moisture to the apartment, in deference to the opinion that a gas radiator has a tendency to dry the air in an apartment, making artificial moisture necessary. The burner is arranged with a pilot light for use in lighting. Immediately below each of the hearing columns is a gas tlame, and the heating columns are provided with inner tubes which extend nearly to the top, through which the heated products of combustion rise and heat the top of the radiator, and then, as there is no outlet at the top, they descend on the outside of the inner tube to the bottom of the radiator and are discharged at the floor, thoroughly heating the radiator. By this means the lower portion of the radiator and the room are well heated. The radiator is made in several

# PLUMBING and GAS FITTING.

### The Culinet Boiler.

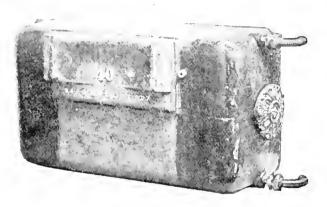
The illustration presented herewith shows the hot water boiler used in the Culinet range made by the Walker & Pratt Mfg. Company, 35 Union street, Boston, Mass. The boiler, which is made of cast iron in one piece without joint or seam, is of several sizes, the largest holding 40 gallous. The range with which it is used has an elevated oven and when the ordinary water back is not employed the Culinet boiler occupies the place usually reserved for an oven. As will be seen from the

iee, serious damage to property has resulted from the old plumbing system not being strong enough to withstand it. The use of a pressure regulator in such cases, after the repairs are made, avoids the expense of an entire new system and prevents further accident.

It is probable that the benefit attending the use of a pressure regulator on the gas supply is not generally understood or their use would become greatly increased. It is impossible for a gas company to maintain an even and proper pressure throughout their system. In consequence gas is burned at a much

water heaters. The Acme No. 6 is intended for use by doctors, dentists and barbers. Consuming 15 feet of gas per hour, it will raise a quart of water from 60° to 100° in 30 seconds and will boil the water in 3 minutes. The No. 7 Acme is the same heater with a tray for glasses at the top for bar and restaurant use. A large heater is made in the No. 9 Acme, which will raise 3 gallons of water per minute from 60° to 100°, or will boil 3 quarts of water in the same time. This heater is also made with a shower bath and a thermometer for showing the temperature of the water used. They should only be used where there is but a light water pressure or a water pressure regulator is employed, for, being made of sheet copper, they will not stand much pressure. They have been used with success in buildings where there was no other means of getting hot water for two lavatorles and two baths, the pressure being reduced to their strength.

trating three sizes of new instantaneous



The Culinet Boiler.

picture, a portion of the boiler is exposed to the direct action of the fire, occupying the back part of the fire chamber. It is claimed that the noise sometimes accompanying the use of water backs and boilers is avoided and that this device does not become clogged with sediment so as to interfere with the circulation. It is further stated that its location is such as to insure the rapid heating of the water, and as it is not exposed like the ordinary kitchen boiler, the water when heated does not become cooled by the aurrounding atmosphere. A 40 gallon boiler of this construction, it is stated, is equal to a 45-gallon boiler of the ordinary pattern. The boilers are intended for use where tanks or cisterns furnish the water supply and their hight above the boiler does not exceed 30 feet. Each boiler is carefully tested by water pressure un-der a head of 60 feet, and are treated by the Wells patent process to prevent the possibility of rusting. The service pipes may be connected at either end of the boiler, the cold water pipe at the bottom and the hot water pipe at the top. A circulating or expansion pipe may be connected when desired. An ordinary water back can be furnished when desired to take the place of the Culinet boiler, and may be coupled in the usual style.

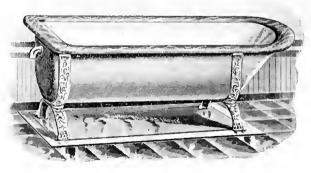
### Pressure Regulators.

The use of pressure regulators is so common and the advantages so well known that they are in demand by all who do steam fitting work. At this time pressure regulators for use on a water supply are being more generally used. In citics where an improvement in the water works system increases the pressure of the water on the house serv-

higher pressure than is economical or effective at a large percentage of the burners in everyday use. This not only leads to a large consumption but to waste and poor light, as under high pressure more gas passes through the burner than can be properly burned for illuminating purposes, and then the gas is said to be poor in quality. The use of a gas pressure regulator in a large number of such cases has had a surprising double effect, in reducing the gas bills and increasing the light. The sale and setting of these regulators has

### Aluminum Bathtub.

One of the new plumbing fixtures that is being put on the market is an aluminum bathtub made by the Aluminum Bath Tub Mfg. Company, Indianapolis, Ind., and shown in the illustration presented herewith. The tubs are made in both the French and Roman patterns, finished with wood rim and supported by ornamental cast iron legs. All the tubs are made with holes for No.  $4\frac{1}{2}$  Fuller bath cocks, but can be furnished for other styles of fixtures when so ordered. The dimensions of the tub are taken from inside of the tub proper, and they are made in  $4\frac{1}{2}$ , 5,  $5\frac{1}{2}$  and 6 feet lengths. But one thickness of metal is used, yet there is sufficient strength, it is claimed, to permit a heavy man to jump into the tub without damage to it. A support runs under the bottom of the tub and is fastened



Aluminum Bathtub.

been found very profitable by the plumbers in some of the larger cities and it is probable that the study and understanding of these appliances can be widely turned to profit.

THE INSTANTANEOUS WATER HEATING COMPANY, 838 Broadway, New York, are sending to the trade their supplement to catalogue No. 2, illus-

to the cast iron feet. The tub presents a bright polished appearance that may be continued indefinitely, as it is said the metal may be accured if necessary, as there is no coating to be destroyed. A circular that is being distributed by the company shows what they term the American system. It represents a pump connected with a water boiler, which is arranged to be heated by either gas or gasoline and is specially adapted for use

in country residences. Du Bois & Darrow, 61 Gold street, are the New York seents.

#### Progress in Plumbing.

The following is an extract from a paper read by J. W. Hughes of Montreal, Canada, before the convention of the American Health Association, held at Montreal in September. Taking for his subject "The Evolutionary Developments of Domestic Plumbing During the Past Thirty Years," Mr. Hughes said that the annual meetings of the association were the milestones that mark the progress made on the journey toward the goal which they hoped to reach in the not far distant future, or the rallway stations where the traveler stops over for rest and recreation, or changes cars and branches off to new routes. As the prudent traveler at such places would look back over the journey passed for the experience to guide him on the road to come, so should they, on an oceasion of this kind, review the past and see what has been done, with a view to shaping their course in the future, so as to save toil and money, for they were traveling for business, not merely for mental diversion and recreation. The faddists or dillettanti sanitarians, of which there were a considerable number, fully represented the latter class.

#### Trapping.

Thirty-five years of daily practice, Mr. Hughes considered, placed him in a position in which he could speak with authority upon his subject. All the great changes in men, methods and materials, that so greatly distinguish mod. ern plumbing, had taken place in that period. The great distinguishing difference between domestic plumbing in the remote past, as revealed in the writings of classical authors, and as shown in the ruins of ancient cities, and modern plumbing, arises out of the question of trapping. So far as Mr. Hughes' knowledge on the subject goes there is no reliable proof that the ancient craftsmen understood the virtues of the water seal trap as a safeguard against the entrance of disease germs into buildings, and it is within the past 35 years that the full importance of the subject has become known. To the intelligence of the modern plumber we are indebted in a large degree for those practical methsafe plumbing without which would be an impossibility. Trap siphonage was unheard of 30 years ago and back air venting was not thought of. Thirty years ago many of the city sewera were constructed of wood, and even where there were brick or tile street sewers the house connections were wooden boxes, in many cases conducted over the earth in the cellars. Today all interior drains must be constructed of heavy pipe, so put together as to be able to stand the water, smoke or peppermint test.

#### Use of Lead.

Years ago the material in universal use for soil, waste and water pipes was lead. Lead was used for bathe, sinks, eisterns and pumps. Then the plumber was rightly named. To day lead is almost a thing of the past for such purposes. It has been replaced very largely with cast and wrought iron, copper, brass and iron lined with glass, and the coming pipe would probably be aluminum. In no department of the trade has the change been so great as in the fixtures. The old foul, bad amelling

closet is no more seen except as an interesting relic. In its place are various kinds of porcelain closets, some of them works of art and science in their construction and decoration. The porcelam, iron, enamel, copper, German silver and fiber bath have replaced the old time lead one. Again, the change has been most complete in the meth ds of finishing the wood work. everything must be open to light, air, soap, water, proom and brush. The two most important questions for the up to date sanitarian are, in Mr. Hughes' opinion, overcrowding and ventilation. He appealed to the association to use its influence in the direction of encouraging the education of more skilled workmen in the plumbing trade. Special precautions are taken in educating minister and lawyer for the care of our souls and the protection of our property, and doctors for the care of our bodics, while comparatively nothing is being done to educate and train a class of men whose life work it should be to construct scientific and safe apparatus within our dwellings for the preservation of our health

"We cannot have public health," Mr. Hughes concluded "without health to the family and individual, and no one can contribute a greater share toward this than the plumber, or, as I believe he will be called, the practical sanitarian." Which of our great institutious of learning will be the first to afford proper facilities for the training of such men?

#### A Medal for Plumbers.

By order of the Court of the Plumbers' Company, one of the ancient guilds of the city of London, a very hand-some medal has been prepared, which will be competed for by the skilled workmen of the craft in England. The object of the guild in instituting this prize is to mark in a very conspicuous manner their sense of the supreme importance of fostering the highest skill in workmanship as the true essential of a technical education. The terms under which the medal is to be competed for are still under consideration. The medal itself, which is said to be a true work of art, is thus described in the Plumber and Decorator of London: The obverse of the medal gives a representation of St. Michael with outspread wings vanquishing the Spirit of Evil. archangel is armed cap-a-pie, and bears the white cross on a red field as opposed to the cross of St. George, borne by the eity of London. It will be noted that the figure of St. Michael, the arbiter of the fate of souls, forms the erest of the Plumbers' Company, and he is therefore chosen, in his capacity as Destroyer of Evil, to represent the work and aims of the company. Crowning the head of the archangel are the city arms, which not only indicate the association of the company with the city, but also appropriately record the fact that the master last year, Sir Stuart Knill, was Lord Mayor. The legend, "The Worshipful Company of Plumbers," frames the composition and completely fills the circle, the interlacing pinions of the angel and evil spirit forming a setting to their struggle. The reverse of the medal shows the coat of arms of the Plumbers' Company in exceptionally high relief, in order to harmonize with the treatment of the obverse. Inscribed are the mottoes of the company and the words, "First struck and presented for excellence of workmanship, National Workmen's Exhlbition, London, 1893."

#### TRAPS AND VENTS.

Thos, Killy & Bros., Chicago, have been awarded a beautiful broize medal by the I lines. Chapter of the American Institute of Architects for their exhibit of siphon and washout water closets and the Kelly Sanitary Siphon wash basins at the First Annual Chicago Building Trades and Material Exhibition, held in the Institute of Building Arts May 15 to June 2, 18.04. The obverse of the medal shows in harriler renowned examples of architecture set in the punch of a quarterfoil, while the reverse lears the name of the exhibition and "award for merit," within a handsomely designed scroll.

THE MARYLAND POLIFRY COMPANY, Baltimore, Md., are assuing a catalogue of 58 pages of handsome chamcled paper, bound in black cloth, with gilt side titles, consisting of name, address and trade mark. The title page is printed in red and black, and calls attention to the makers' specialty of vitreous china for plumbers' ware and sanitary spe-cialties. The first few pages are de-voted to terms, a special notice, the trade-mark, the qualities and superiority of vitreous china and the Maryland siphon jet closet. Then follows a pricelist of vitreous china, round and oval lavatory basius, plain and embossed; French closet bowls: urinals, flat, corner and with lip; hopper closets in different styles and with trap; a large variety of washout closets and pedestal and siphon jet closets. The last 10 pages are devoted to engravings showing the various goods made in all their details. The catalogue is just what the users of such goods will find a great convenience and can be had on application. Inclosed with it is a discount circular that will be interesting to buy-

A COMPLAINANT against the plumbers' examining board of Albany, N. Y., has found no sympathy with the public, as it was learned that he was given several examinations and failed in all. The board is very popular with the plumbers of the city.

RICHARD ALLEN has been granted a plumber's license at Bangor, Maine.

FRED B. WILSON, Carthage, N. Y., has sold out his interest in the plumbing business to his partner, D. F. Hubbard.

A. N. Sprague and Charles D. Moore have formed a copartneiship for the purpose of carrying on a general plumbing, stove and heating business, at the old stand of G. B. Gaylord & Co., Westfield, Mass. The store has been thoroughly renovated, furnished with a plate glass front, and filled with a full line of new and attractive goods.

B. P. OWEN, East Hampton, Mass., has resigned as examiner of plumbers, and George L. Manchester has been appointed to the position.

The Brockton Heating & Plumbing Company have started in business at 115 Montello street, Brockton, Mass., where they advertise to do repairing night or day. M. H. Kelleher of the company is from New York.

R. SMITU, Wilkes-Barre, Pa., in addition to the plumbing business, makes a specialty of gas fitting and fine gas lighting fixtures. He has the contract for supplying the gas fixtures for the new City Hall just completed in that eity.

Anour 200 members of the Master Plumbers' Association enjoyed an outing last week at the country residence of John Trainor of Baltimore. Everybody present participated in a number of football and baseball games. Mr. Trainor was sesisted in receiving his guests by his wife, Mrs E len Lynch of Yonkers, N. Y., Miss Kate Fells, Mrs. Henry Voke and Miss Helen F. Trainor.

THE FLUMBERS' SUPPLY MFG. COMPANY of La Crosse, Wis., it is reported, have adopted the profit sharing system

THE FIRM of Connors & Walford, plumbers, 1876 Niagara street, Buffalo, N. Y., have dissolved partnership by mutual consent. The business will be centinued at the old stand by the senior partner, H. L. Connors.

THE PLUMBING INSPECTOR of Kingston, N. Y., in his report to the Board of Health, stated that three different plumbers had done work without a permit or license to do plumbing.

A GREAT DEAL OF TIME has been given by the City Council of Woodland, Cal., to the discussion of the imperfect plumbing of water closets which are connected with the sewer system. It is contrary to law to have a closet connected with the sewer that has no trap or vent plpe, and the city attorney has been instructed to prepare notices for the sewer inspector.

Durino the past month a very agreeable increase in the sales of instantaneous water heating apparatus has been reported by the Instantaneous Water Heating Company of 838 Broadway, New York. The uses to which these heaters are adapted are being more thoroughly understood and appreciated by the plumbers, who find in them very acceptable means for supplying hot water in many cases.

ELECTRIC FLUSH TANKS for water closets are among the new things in plumbing goods. There is no chain to pull or lever to operate, but by pressing a button the electricity opens a valve and starts the flushing.

WILLIAM E. CONNOR died last week at 188 Pacific street, Brooklyn, N. Y. He was the son of George and Harriet Connor and was a member of the Fourteenth Regiment Band during the late war and for 14 years was a member of the Eighth Regiment, N. G., S. N. Y., Band under the leadership of his father. He was born at Fort Monroe, December 17, 1848, and moved to this eity at an early age. He was well known in the Sixth ward, where he carried on the plumbing business and had lived a long time. His last illness covered a period of five months during which time he suffered considerably. leaves a widow and five children.

THE ESTABLISHED REPUTATION of the soil pipe and fittings of the Monitor Iron Works, Centre and Worth streets, New York, keeps their foundries running busily. In addition to these goods they make a large line of sinks, drsin traps and plumbers' cast iron goods.

THE GOVERNMENT OF THE UNITED STATES, it is stated, requires that vitrified earthenware shall be used in the plumbing of the barracks and army buildings in the future.

W. H. FRENCH of the Armstrong Mfg. Company, Bridgeport, Conn., spent last Thesday at the New York effice, 141 Centre street. Mr. French reports a good demand for their popular stocks and dies, and that there is a growing demand for their machine tools for cutting and threading pipe.

They are making a push on their three-wheel interchangeable pipe cutter, which is becoming a favorite with the pipe fitters and those who cut iron rods and bars in shops.

THE City Solleitor of Des Moines, Iowa, has seeured an injunction against a plumbing house that failed to take out a license. This is a movement on the part of the city to enforce the plumbing ordinance, which the plumbers say is unlawful.

THE PLUMBING INSPECTOR Of Buffalo, N. Y., is still waging war against the plumbers who fail to comply with the city ordinances. Warrants for the arrest of 21 plumbers were issued last Monday.

Twenty-two master plumbers of Somerville, Mass., met last Tuesday evening at the effice of John F. Davlin, 10 Webster avenue, to consider the advisability of forming a master plumbers' association in Somerville. Mr. Davlin called the meeting to order and was chosen temporary chalman. William F. Bennett acted as accretary, and an address on the advantages of such an organization was made by ex-National Secretary David Smith of Boston. After a discussion on the subject it was voted to organize at an early date, and the meeting adjourned subject to the call of Mr. Davlin.

THE NEW PLUMBING ORDINANCE at Seattle, Wash., provides that the health officer shall call a meeting of the Examining Board of Plumbers within six days after the filing of an application for a license, and that the examination shall be public and consist of 20 questions on practical plumbing. Seventy. five per cent. of the answers must be correct to secure a license. In case the license is refused an appeal can be taken to the City Council. When a license is issued the recipient is required to When a license file a \$1000 bond with one or more sureties. All licenses previously granted remain in full force and may be renewed. The penalty for violating the ordinance is not over \$50 fine, or not over 30 days, imprisonment in the city jail, or both.

At the Congress of the Sanitary Institute of Great Britain, held recently at Liverpool, Sir Francis Sharp Powell, the new president, in his inaugural address, stated that England had spent \$273,600,000 on urban and rural and \$321,600,000 on other local improvements in the endeavor to realize good sanitation. The improvement in the public health, however, which had accrued in the same period fully justified, he said, that expenditure.

W. N. Wilson has arranged to transfer his plant for manufacturing plumbers' supplies and automatic flush tanks to Richmond, Ind.

Owing to the dealers in plumbers' supplies of Providence, R. I., re'using to sell goods to plumbers who were not members of the Master Plumbers' Association, legal action was taken which has resulted in the court granting a restraining injunction against what it terms a boycott.

Z. T. DARROW, who has the sewer contract at Marietta, Ohio, is preparing to open a sanitary plumbing shop on lower Front street.

ROBERT JOHNS will erect a \$12,000 residence, at 6463 Sheridan avenue, Chicago, that will be heated by hot water and have a plumbing system.

Montreal Master Plumbers.

The Master Plumbers' Association of Montreal and vicinity held their regular meeting Thursday, October 4. The principal business on hand was the discussion of the new city plumbing bylaws. At an early date a meeting will be arranged with the city officials, with a view to discussing the by-laws with them, as there are some clauses not quite clear. Another item of business taken up was the plumbing class, which is carried on under the auspices of the Council of Arts and Manufactures, one of the sub departments to the Government of the lirovince of Quebec. The class was started at the request of the Master Plumbers' Association some years ago and has already accomplished a great deal. Last year the class outgrew the facilities in the way of accommodations and additional premises are to be secured. The Government are now seriously considering the question of erecting a building for the accommodation of the classes, which number 11 in all. They are, freehand (advanced), model and objective drawing, freehand drawing (junior), mechanical drawing, architectural drawing, modelurawing, architectural drawing, modeling, wood carving, lithography, decorative painting, stair building and building construction, plumbing, and pattern making for boot and shoemakers. The attendance this year was 318. The plumbing class is superintended by a special committee of the Montreal Master Plumbers' Associa-

### Battersea Polytechnic, London.

Among recently established technical schools in London is the Batterses Polytechnic Institute. It has lately issued a prospectus for its second session, which opened on September 24. The instruction offered in the Institute covers a very wide field and includes subjects auitable for both men and women, the number of classes being no less than 133, in 71 different subjects. The instruction in all technical and science subjects is associated with laboratory or workshop work, the institute being fortunate in possessing laboratories for chemistry, physics, mechanics, and electrical science; and workshops for engineers, carpenters and joiners, plumbers, bricklayers and masons, plasterers and painters, and well fitted cookery schools and laundry.

Among the special features in the prospectus are the formation of "courses of classes," with a view to encouraging continuous and co-ordinated atudy, the effering of special afternoon classes for apprentices, and special classes in manual training and in acience for teachers only. Numerous scholarships are open to the students.

The institute is State aided, under the act of Parliament passed a few years ago for the purpose of promoting trade and technical education. Since the passage of this law, the growth of trade and technical schools throughout England, and especially in and around the metropolis, has been very satisfactory, notwithstanding the disfavor shown them by the trades unions and the oppositions offered by these organizations.

The heavy withdrawals of September caused a decrease of nearly \$10,000,000 in the value of goods left in the bonded warehouses on the last day of that month as compared with the figures for August 31.

## STEAM AND MOT WATER.

#### A Combination Heating Plant.

Through the courtesy of the Howard Furnace Company, Syracuse, N. Y., we are enabled to bring to the notice of our readers a very interesting heating plant which has stood a winter's test to the entire satisfaction of the owner. The house, which is located in Syracuse, has an unusual exposure, as it stands at the fork of two roads facing the main road, which leads from a

so arranged that the air may be taken from two points inside of the house, a 12 x 30 inch duct, Inside measure, being taken from the dining room and a 12 x 30 duct from the hall. Air is taken from out of doors through a 10 x 26 inch duct and the ducts are arranged to take a part of the air supply from the inside and a part from out of doors or all from the house to enable the house to be more quickly heated by a rapid circulation of air when the weather is cold.

TO SEASER

SND FLOOR

A Combination Heating Plant.-Fig. 1.—Cellar Plan, Showing Heater and Piping.

northerly direction. One of the Howard No. 23 double radiator combination air and water heaters is used for the work, affording a positive change of air by means of the registers and a positive heat from the radiatora. The registers used are made by the Tuttle & Bailey Mfg. Company, and the radiators are of the Perfection pattern made by the American Radiator Company, each radiator being decorated to harmonize with the room in which it is placed.

In this plant there are several features of peculiar interest. The air ducts are

This arrangement insures a warm dining room early in the morning, which is always desirable, but sometimes difficult to secure. Fig. 1 shows the cellar plan with the heater, the cold air ducts, the hot air pipes and the piping for the hot water system. Figs. 2 and 3 show the first and second floor plans, with the location of the radiators, registers and hot air flues.

Some difficulty has been experienced with combination heating plants when a part of the building is heated by hot air and a part by hot water radiators, as that part heated by the radiators is

made too hot or too cold unless the water heater and the radiators are of just the right capacity for the heater and the way it is fired. In this plant a register and a radiater in each room overcomes the possibility of trouble from that cause. The hot water plant is arranged on the circuit system, the flow and return to a radiator being connected with the same main flow main. which runs with a a gradual rise till the last radiator is reached, and it eventually becomes the return of the system. From the top of the heater a 2 inch main runs toward the front of the house, where a 11-inch branch runs to the side which has the most radiators and the coldest exposure, and a 14 inch branch runs to the other side. Before the 2 inch main branches it is tapped for a 14-inch flow and return to a radiator having 80 square feet of surface in the hall. From the 11-inch branch mair, 1-inch flow and return mains are taken to a 56-foot radiator made eireular to fit in the bow window in the parlor, and a similar radiator of 36 square feet in the chamber above. The branch is tapped with 1-inch pipe lead. ing to a 40-foot radiator in the library. and to a 32-foot radiator in the chamber above. It is also tapped for a 16foot radiator in the bathroom, a 16foot radiator in a back chamber and for a 20-foot radiator in upstairs back hall, and when it nearly reaches the heater it is again tapped for a 16-foot radiator in the back hall down stairs. From this point the main, which has been carried full size all the way, has a gradual fall to the heater. The 11-inch branch runs around the other side of the house, being tapped for a 36-foot radiator in the reception room and for a 32-foot radiator in the chamber above. The next connection is for a 24-foot radiator in the chamber above the dining room, and further on it is tapped for a 40-foot radiator in the dining room; then just beyond it is tapped for a 12foot radiator in the butler's pantry and for a 20-foot radiator in the nursery above. The main is tapped at a suitable place at the rear of the ceilar with a 1-inch pipe which runs to the sewer, a stop cock being placed to control it and to provide for emptying the system, and at the lowest point a draw off

cock is placed for emptying the heater. All of the piping in the cellar is covered with 4-inch halr felt and asbestos paper. The risers, with the exception of those at the back of the house, are in the walls and not exposed. The plant is run on the closed system, an ordinary safety valve set at a pressure of 75 pounds being placed on the expansion tank in the npper part of the house and arranged for the overflow to run into the sewer. In Figs. 2 and 3 are shown the plans of the first and second floors of the house with the location of the radiators, hot air flues and registers. A register and radiator are shown in all of the principal rooms, the exceptions being the butler's pantry, lavatory and rear hall down stairs, and the dressing room and rear hall upstairs.

In distributing the hot air, 10-inch pipes lead from the heater to 10 x 14

floor registers in the dining room, reception room, hall, parlor and library, and to a 5 x 12 inch tin flue to the chamber over the reception room. Nineinch pipes lead to a 3½ x 14 inch tin the to the chamber over the parlor and to a 3½ x 11 inch tiu flue to the chamber over the library. Eight-inch pipes lead to an 8 x 10 inch floor register in the lavatory, and to 3 x 101 inch tin flues to bathroom, chamber over kitchen, nursery, attic and dining room Circular top side wall regchambers. isters 8 x 12 inches in size are used in all of the upstairs room except the parlor and library chambers, where 9 x 12 floor registers are used. It will be seen that larger pipes and flues lead to the colder rooms, and that the combined area of the hot air pipes equals nearly 900 inches. When both the hall and dining room air ducts are open the air supply aggregates 720 inches, or more than three quarters of the outlet, but if they are both shut off one half and the outside air duct is opened full, the supply aggregates 620 inches, or more than two-thirds of the outlet. From these figures the furnace seems to be well supplied with air and ample provision made for circulation to secure rapid hearing and for a change of air to secure ventilation.

From the amount of surface exposed in the radiators in the different rooms and the cubic feet of space the rooms contain, it will be seen that those coming first on the flow main and receiving the hotter water are expected to heat the most space and to warm the colder parts of the house. The water in such a system would naturally reach the furthest radiator at a considerably lower temperature than it reached the nearest, and in this apparatus the provision made for this loss of heat and the extra duty required of the surface at some points seems to have been correctly calculated in apportioning the surface, as the plant has proven entirely satisfactory.

#### HEATING NOTES.

BATH, N. Y., is to have a new firm of heating contractors. The Havill Brcs., who have had a practical experience in ateam work, are making preparations to go into business.

THE NEW HAVEN Record gives a portrait of Col. W. C. Mowry, Norwich, Conn., who is candidate for the office of Secretary of State. The colonel can give the politicians some "Pages" on making steam that ought to carry any canvass.

"IT IS SUBMITTED as the handsomest radiator casting extant," is what the American Radiator Company, 92 Centre street, New York, say of the Detroit flue renaissance radiator at the entrance to their show rooms. Instead of being bronzed and decorated as their great variety of other radiators, it is shown just as it came from the foundry, in atrong contrast with their beautiful finish. That it will be popular is sure, but that the Perfection and National will ever be supplanted by it is improbable. They are well known prime surface and prime favorite goods.

THE ST. LOUIS RADIATOR MEG. COM-PANY, St. Louis, Mo., are running their works to full capacity. They are placing their radiators in a number of the principal buildings now being equipped in that city, as well as in those of aeveral leading cities of the West. Among the latest and largest contracts awarded the company was one for 30,- 000 feet for the new public schools now being finished in this city.

W. K. PIERCE AND HORACE WHITE, representing the Steam Heat & Power Company, Syracuse, N. Y., have contracted with the mayor for steam for heating the City Half for \$3000 for the coming winter. The same Company arc said to have received \$5000 for the same work two winters ago.

A SYSTEM of steam heating by piping the principal part of the city of Canton, Ohio, is talked of by the Canton Electric Light & Power Company. Their object will be to heat all the big build-

one in the United States Hotel to filter all the drinking water used, one in Hotel Capitol and one in L. B. Plimpton's residence.

THE WELLS & NEWTON COMPANY of Chicago, plumbers and steam fitters, are to be succeeded by the Wells Newton-Quay Company, with a capital stock of \$50,000. The incorporators are D. Milroy Quay, Samuel J. Felty, Croaby Adams and Henry M. Bacon.

THE GROWTH of steam and hot water heating is strikingly apparent to those who frequent Lake street and its vicinity in Chicago. Beginning at State street

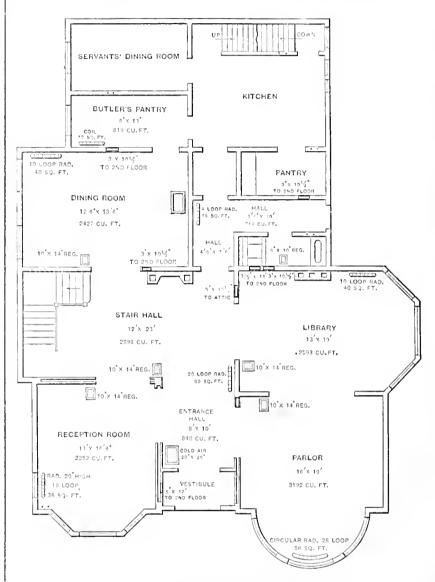


Fig. 2.—First-Floor Plan, with Registers, Radiators and Flues.

ings by the exhaust steam from their battery of boilers, adding some live steam.

WM. BLEVINS, formerly secretary and treasurer of the Bosworth Heating & Supply Company, has withdrawn from that company and taken the store 40 State street, Hartford, Conn., under the United States Hotel, where he will carry on a general hot water and steam heating business. Mr. Blevins has a number of contracts on hand at present, including the remodeling of the heating apparatus in Germania Hall, putting a hot water heater in J. Scrugham Quinn's residence, the heating of three greenhouses for Mr. Whiting, at West Hartford, using two Caswell hot water heaters. Mr. Blevins is also agent for the Wilson patent filter, and will put

and walking westward, large establishments are seen on both sides of the street, devoted to the sale of hoilers, radiators and general supplies, overflowing on Dearborn street and extending west on Lake street to some distance beyond the Chicago River. Few of these establishments have been located in their present quarters long enough to be time-honored institutions. Their appearance on Lake street can in most instances be counted in months more easily than in years. For some time past there has been hardly a month that has not seen a fresh addition to this ateam and hot water colony. Nearly all have quarters on the ground floor, so that their patrons are spared the discomfort of mounting even one tlight stairs to get figures on a job. Their warerooms are tastefully and

in some cases most elegantly fitted up, the radiator people shining conspicuously in this respect, the American Radiator Company having one of the finest showrooms to be seen in Chicago in any line. The progress of steam and hot water heating is further seen in the

logue is handsomely gotten up and the prices printed are all f.o.b. Chicago.

#### Safety Damper Regulator.

A device that will be interesting to those who install steam plants for house

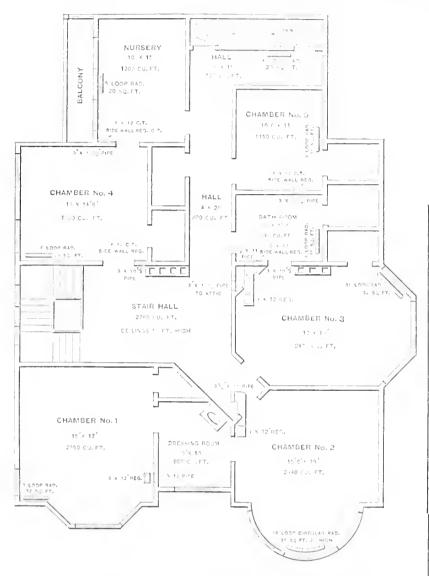


Fig. 3.—Second-Floor Plan with Registers, Radiators and Flues.

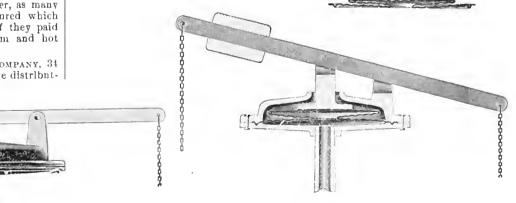
steam and hot water apparatus added to their lines by the warm air furnace houses which are sandwiched among the concerns making a specialty of steam and hot water. The two lines seem to work well together, as many heating jobs are thus secured which would not come their way if they paid exclusive attention to steam and hot water.

A. A. GRIFFING IRON COMPANY, 34 Dearborn street, Chicago, are distributheating is shown in the two illustra-tions herewith of the Safety Damper Regulator made by the Poorman Mfg.

close the cheek damper and draft door to maintain the fire in a proper condition, keep the boiler steaming to supply the radiators without waste of fuel or permit the tire to become dead. Special claims are made for the efficiency and durability of the device, as the diaphragm is not liable to give way from weakness when under a maximum pressure during a cold spell and heavy firing. Fig. 2 is a sectional view showing the internal construction. The diaphragm is made of three copper disks, the lower one form ng a jacking between the plates of the regulator The lower plate has an annular V shaped groove on its outer edge and the upper plate has a corresponding V-shaped projection to fit into it, holding the lower disk accurely in place in a steam tight joint. The center disk is double seamed and soldered to the hottom disk near the center, having a 11 inch aperture. The top disk is solid and fastened in the same way to the cuter edge of the center disk. The disks are corrugated to give them spring, and in Fig. 2 they are shown as an expanded diaphragm, and in the small view they are shown in their normal condition, This diaphragm is said to be very sensitive in use and practically imperisha-

An English syndicate has organized, with \$450,000 capital, to develop the iron, mica and other ores in Frontenac, Canada.

The Mechanical World of London reports that a new bullet proof shield was lately tested at the works of Charles Cammell & Ce., Sheffield, England, with complete success. The shield, which is the invention of Captain Boynton and is manufactured by the firm above mentioned, takes the form of a plate of specially prepared chrome steel, with a slot in the top for the soldier's The weight is less than one-half riile. that of a life guardsman's cuirass, and the material has such powers of resistance to a sudden shock that it is proof against the service bullet propelled by cordite through a Lee Mitford barrel at 30 yards distance. A bullet which would pass completely through an oak plank 3 inches thick is powerless to do more than make a slight indentation in Captain Boynton's plate of steel only are inch thick. Mr. Tucker, R.E., fired hve shots at one plate from a Lee-Mitford rifle, and placed his shots as near



Safety Damper Regulator .- Fig. 1.-General View.

ing a special edition of the catalogue of | the Auburn steam boiler, manufactured by F. W. Wright and for which they

Company, Canton, Ohio. In Fig. 1 a general view of the regulator is given as attached to a low pressure steam are general selling agents. The cata- | heating hoiler and arranged to open and

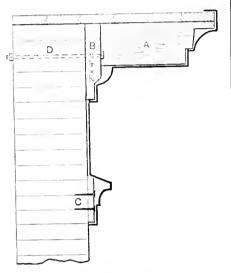
as possible in the same spot. This test was withstood by the plate, and there was not the slightest indication of the shield being perforated.

Fig. 2,-Sectional View.

## ROOFING AND CORNICE.

Attaching Galvanized lron Cornice to an Old Brick Building.

From J. H., Cleveland, Tenn,-Will The Metal Worker illustrate the proper way of attaching a galvanized iron cor-



Attaching Galvanized Iron Cornice to an Old Brick Building .- Fig. 1 .- Side Elevation of Wooden Lookout Secured to Wall.

nice to a building that is completed, or in other words, an old brick building?

Answer. - In Figs. 1 and 2 is shown one method by which a cornice can be attached to a brick building, using wooden lookouts for the purpose, the

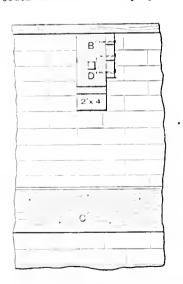


Fig. 2. - Front Elevation of Wooden Lookout Secured to Wall.

lookouts being secured without remov ing any of the brick work. In the side elevation, A represents one of the lookouts, which is fastened to B with nails, screws or bolts, as may be desired. To secure the lookout to the

wall a hole is first drilled, then the bolt D passed through the piece of wood B and through the wall, being secured by means of the nut. In the front elevation the piece of upright wood is indieated by B', the bolt by D' and the lookout by A'. To secure the foot molding to the wall, a strip of board (C) of the proper width can be nailed to the wall and the foot molding nailed to this. If the mortar joints in the brick work are not adapted to holding the nails, it may be found necessary to cut out the mortar and drive in wooden plugs into which the nails can be driven. In some cases it may be found convenient to remove an entire brick, its place being filled with a piece of wood of similar size, the same being

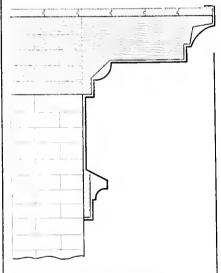


Fig. 3.-Wooden Lookout Placed on Top of Wall.

held in place by means of mortar or cement. Another method of securing the lookouts is shown in Fig. 3. The top of wall is removed so as to allow the lookouts to be placed in position, when they can be set in brick in the usual manner.

If it is desired to use iron lookouts for the cornice, they can be so eonstructed as to conform to the general outlines, the cornice being secured to the lookouts by means of bolts. As shown in Fig. 4, at E can be driven an eye for holding the lookout at this point. The eye can be made from 11 x tinch iron, and say about 7 inches long, with a suitable hole at the end for a bolt to pass through, and drawn out like a wedge at the other end. The mortise in brick or mortar joint should be cut as true as possible, and only a tritle wider than the eye. Pleces of thin board can be put in above and below

the eye so it will hold when driven. When driving the iron eyes a round punch can be put in the hole to prevent its being closed by the force of the hammer blows. The lookout has a hole iu its end at E, and is to be secured to the eye by means of a bolt. The top of

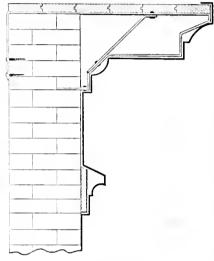


Fig. 4.-Iron Lookout Secured to Wall.

the lookout iron can extend down over the wall and be secured to the brick or roof as may be required.

#### Chicago Cornice Workers.

At Chicago, on the 11th inst., the Amalgamated Sheet Metal Workers' Union effected a settlement with their employers, the Metal Cornice Manu-facturers' Association, and the strike which has been so long kept up was declared off. Mutual concessions were made in the new agreement, which is to continue in force till January 1, 1896. We print below the provisions of the agreement:

1. Eight hours shall constitute a day's work; that the hours of labor shall be from 8 a.m. until 5 p.m.; one hour for din-

2. The minimum rate of wages shall be

2. The minimum rate of wages shall be 35 cents per hour from date of signature nntil January 1, 1896.

3. All Sundays, Christmas, New Years, Fourth of July and Thanksgiving Day shall be paid at the rate of double time; overtime at the rate of time and one half.

4. All workmen sent out of the city are subject to the same rules as while working in the city, and in addition thereto shall receive all actual expense, excepting, if unmarried they shall also receive board, provided they claim the same beforehand, but they may, however, waive such claim for

vided they claim the same beforehand, but they may, however, waive such claim for board and expenses.

5. All workmen shall be held responsible for their work, or the loss or destruction of tools, stock and all property of their employers when it is due to their negligence or other causes directly traced to their carelessness or incompetency.

6. Cornice makers who have sent in resignations or have continued work for associated bosses during strike or lock out shall be held blameless and not be subject to any hardship, punishment or fines by the Amalgamated Sheet Metal Workers' Union or any of its members. Union or any of its members.

7. Any dispute that may arise between the employer and employee concerning the meaning and intent of this agreement shall be settled by arbitration, three to be chosen by each party and the seventh by those so chosen, the parties hereto agreeing to abide by the decision of such arbitration.

tion.

That the Amalgamated Sheet Metal Workers' Union shall not allow any of its members to work or be employed by any one at their trade who is not a member of the Corpice Manufacturers' Associaone at their trade who is not a member of the Metal Cornice Manufacturers' Association of Chicago, and will send outside walking delegates to enforce the same and report jobs about to be built or in course of erection, their location, owners', architects' and contractors' names to said Metal Cornice Manufacturers' Association of Chicago at least once a week, not later than every Tuesday forenoon, by communication from the secretary, or any person he may delegate, such communication shall be stamped by seal of nnion and sent in sealed envelope.

9. That the card issued by the Metal Cor-nice Manufacturers' Association of Chicago nice Manufacturers' Association of Chicago be recognized in connection with the card issued by the Amalgamated Sheet Metal Workers' Union, entitling the owner to work for the firm whose name appears written on its face, and the names of three employers appearing on back of said Amalgamated Sheet Metal Workers' Union card certifying to the incompetency of the holder in his work shall disqualify him from receiving the minimum rate of wages.

19. Union cornice makers are not allowed to work with non-union men, and the Sheet

to work with non-union men, and the Sheet Metal Cornice Manufacturers' Association agree not to hire men who have not a card or agree to get one in one week from the Amalgamated Sheet Metal Workers' Union. This rule shall not apply to cutters, super-intendents, members of the firm or their

sons.

11. Any change in this agreement to be made between the association and the union shall be given notice of two months prior to the expiration of this agreement,

#### FLASHINGS.

THE E. E. SOUTHER IRON COMPANY, St. Louis, Mo., had an exhibit at the recent fair which was a nest one-story structure built entirely of corrugated iron, in which they presented a full line of corrugated sheets, showing corruga-tion of all sizes used for both ceiling and siding and curved for any purpose. They also showed their beaded siding and ceiling, steel brick siding, climax steel sheet roofing, V-crimped roofing, pressed standing seam roof, roll and cap ateel roofing, galvanized corrugated downspout, eave troughs, elastic roof cement and ready mixed paints for wood or iron work. Their exhibit was also used by the Fair Association for the fair grounds post office on account of its neatness and its being fire proof.

F. B. Musson, Derby, Conn, has the contract for the slating and steel ceiling for the new Congregational Church at Shelton.

AN EXCELLENT IDEA of the possibilities in architectural sheet metal work can be gained by a visit to the office of Gara, McGinley & Co., 23 South Seventeenth street, Philadelphia. The entire exterior surface of the building is covered with sheet metal and the in-terior walls and ceiling are of metal as well as some of the furniture. The firm take pride in this exhibition of their ability to do artistic sheet metal work.

THE BOSS EAVES TROUGH HANGER. patented, which has been manufactured in small quantities for some time by Proudman Bros., Meriden, Conn., who also make the well-known Yankee eave trough hanger, is being turned out in larger quantities and at a lower price to meet the demand for a less expensive hanger. This hanger, it is stated, will fit all sizes of heads. It is furnished with points that penetrate the trough just below the bead, thus holding it as

firmly as in the inner side, and is made of the best wrought metal, with straps of assorted lengths, and is packed one gross in a box.

THE CHAMP METAL MEG. COMPANY are to build a one-story corrugated iron building, 50 x 54 feet, for metal fur-naces, on Old Second street, below Fisher's lane, Olney, Pa.

THE EAST BIRMINGHAM IRON ROOF ING & CORRUGATING COMPANY of Birm ngham, Ala., refer to their iron roofing as possessing the combined qualities of being water, wind, fire and lightning proof. They state on a postal card which they are mailing the trade that they cannot go round and pry open the eyes of people, or knock the idea into their heads, but they will gladly furnish by mail any information desired.

H. O. SPRAGUE & SON, Westfield, Mass., have seenred the contract for furnishing and erecting the galvanized iron cornice work on the new R. W. arks five-story building in that town. The work is to be particularly elaborate and will be an exceedingly handsome piece of sheet metal construction.

THE TUCKERTON TIN, COPPER & SHEET IRON WORKS are a new concern started at Tuekerton, N. J., to do all kinds of work in sheet metals. The firm make tinware to order and do roofing and similar work.

A. L. & F. GEDGE have bought the new Porter Corrugated Iron Works, at Anderson, Ind. It is stated that the new owners will double the capacity of the plant.

EDWIN E. NOYES, manufacturer of cornices, at 584 West Lake street, Chicago, made an assignment on the 15th inst. in favor of Walter II. Browne as assignee. Assets were scheduled at \$10,000 and liabilities at \$4000.

J. J. Colvin, 159 La Sille street, Chicago, reports the following contracts: Copper work for that building of W. A. Preidler, Belden avenue and Fremont street; copper work for residence of M. Ryan, Humboldt boulevard and Linden street; galvanized iron work for new shop of the Vulcan Iron Works, Kinzie street and Oakley avenue.

THE KNISELY & YELDHAM COMPANY, 68 to 74 West Monroe street, Chicago. have contracts for the copper work and slate roofing for the residence of E. A. Woods, Vincennes avenue and Forty-fifth street, and the copper cornices, bay windows and Monson slate roofs for the residence of W. II. Jones, Evanston, Ill.

J. C. McFarland, 2511 to 2519 State street, Chicago, has the following contracts: Copper roofing for new McCormick Library Building, Belden avenue and Halated street; Ludovici tile roofing and copper work for the Jewish Synagogue, La Salle avenue and Schiller street; copper and slate roofing for St. Peter's Church, north side; Akron red Spanish tile roofing for realdence of P. D. Armour, Jr., Michigan avenue and Thirty seventh street; copper work and three large skylights for Reliance Building, State Washington streets; copper work and Monson slate roofing for residence of J. W. Janney, Greenwood avenue and Forty seventh street.

The Lick Manual Training School, established and endowed by the founder of the great Lick Observatory, has been opened for work in San Francisco.

#### Luropean Wages.

A prominent business man of Roch-N. Y., who has recently returned from a teur in Europe, publishes in the Express of that city some interesting statistics regarding wages gathered by him in various European cities. statistics, it is stated, were gathered directly from the wage carners themselves, and the work was done with no view to publication for political effect, but slmply for the gratification of the business man's own curiosity. The result is given as follows:

in Constitutinople, the wages were as tol-

Policemen arcent a day
Cabiner
Street cleaners
Carpenters 55 cents a day
Masaus
Farm laborers in provinces — Picents a day
Street car drivers . 40 cents a day
Street car conductors Ta cents a day
Porters for earrying treight. 140 cents a day
Shoemakers
In Algiers the wages were somewhat
higher:

si to silan a day si to \$1.40 a day .... Si a day

The wages paid in Florence, Italy, are:

In Athens the wages paid are as follows:

It is reported that the will of Mrs. Charles Lux of San Francisco, which has just been admitted to probate, sets aside nearly \$3,000,000 for a manual training school. One third of her estate is given outright for "the promotion of schools for manual training, industrial training and for teaching trades to young people of both sexes in the State of California, and particularly in the city and county of San Francisco—it being my desire to assist in furnishing facilities for the education of young children from the time they leave the kinder garten schools and while they are still quite young in what is known as 'manual training, and in all kinds of training looking to the acquisition of useful trades by and through which habits of industry will be acquired and practical knowledge of those things which are useful in earning a living may be acquired."

A board of army engineers has been appointed to prepare an estimate of the cost of deepening the harbors of Duluth and Superior to 20 feet.

### HEATING 20 PLUMBING.

#### NEW WORK AND CONTRACTS.

A NUMBER OF CITIZENS were recently invited to examine the heating and ventilating system which has been ventilating system which has placed in the Fairview School Building, Market street, Harrisburg, by E E. Palmer of Harrisburg, State heating engineer for the J. F. Pease Furnace Company of Syracuse, N. Y. Mr. Palmer is engaged in placing the same system in the Franklin Annex B. The Moravian Parochial School has been using the same plant for six years with perfect satisfaction.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until November 7 for all the labor and materials required for the interior finish, plumbing and approaches for the United States Post Office Building at York, Pa. Drawings and specifications may be had from the superintendent, at York, Pa.. or of the Supervising Architect, at Washington.

THE ROBINSON HEATING COMPANY OF Altoons, Pa., have been awarded the contract for heating the Allegheny street residence of Councilman John H.

THE FULLER & WARREN COMPANY, 147 and 149 Lake street, Chicago, are to install a combination warm air and hot water heater in the residence of C. A. MacDonald, 1563 Sheridan road.

Business is good with the Sperl Heater Company, Carbondale, Pa. Among recent sales of the Sperl heaters are the following: John Wade, P. J. McDonough, J. P. H. Raynor, T. C. Robinson and M. Garvey of Carbondale; J. L. Morgan & Co., Forest City; Calvin Perrin, Luzerne, Pa.; Vandling School district, Vandling; Richmondale School district, Richmondale; Mahan's Hotel, Olyphant; Ziegler & Schumacher, Scranton; C. H. Brink, Middletown, N. Y.; C. W. Boyden, Susquehanua.

CLIFFORD & Hood, Concord, N. II., have been awarded contracts for the heating, gas piping and plumbing of the Y. M. C. A. Block and the house of Mrs. Goodwin, on South street, and for the heating of the residences of George N. Lander and John H. Albin, and the block of Martin & Luscomb. The heating apparatus in each case is a Dunning

OLDS & WHIPPLE have contract for the heating in a \$10,000 residence being erected by Thomas Evans, at Hartford, Conn.

THE BAKER & SMITH COMPANY, 193 to 197 Van Buren street, Chicago, have the contract for steam heating in the residence of A. S. Stevens, La Salle

HOYT & FARRELL, the Noble avenue, Bridgeport, Conn., plumbers, have the contract for plumbing two new houses on Iranistan avenue for C. II. & E. J. Botsford, the carpenters. They also have the plumbing of a house in the East End which John Dillon is to build for Samuel Corby.

THE BRIDGEPORT STEAM HEATING COMPANY, Bridgeport, Conn., have se cured the contract for placing a steam heating apparatus in J. Donovan, Jr.'s two new blocks in South Norwalk.

M. J. DALY, Waterbury, Conn., has JONES & JAEGER are using two large a large contract on hand at Torrington Electric boilers in heating the flats of

overhauling the boilers of the Coe Brass Mfg. Company and putting in new ones. He is also putting in a new fire hydrant system for the Waterbury Watch Company and one for the Waterbnry Clock Company, and will put an H. B. Smith heater in one of F. B. Rice's new houses.

THE new Turn Hall in Meriden, Conn., which has just been completed, is heated throughout by the McCormsck steam heater, installed by J. H. Mc-Cormack, the manufacturer of the boiler, whose place of business is in Wallingford. Mr. McCormack has also just completed the plumbing and heating of the new showrooms of Wallace & Sons, at 226 Fifth avenue, New York.

FINCH & COLWELL, Warwick, N. Y., have the contract to put in a steam plant in the residence of Dr. G. F. Pitts on Oakland avenue; also to furnish and on Oakland avenue; also to furnish and lay 1800 feet of iron pipe for William R. Welling, at New Milford. Mr. Welling has a fine water supply from the mountain above his farm, with a pressure of about 40 pounds. He will probably put in a water motor to do light work.

THE TEMPLE EMANUEL at Forty-third street and Fifth avenue, New York, is to be heated with two large size Electric boilers, by Gillis & Geog-

MERTZ BROTHERS, 107 Twenty-second street, Chicago, are to place a com-bination gas heater in the residence of J. L. Shortall, 1604 Prairie avenue.

LEVI CASE & Co., the sauitary plumbers and heating engineers, of Glens Falls, N. Y., are gathering in big contracts from people of Glens Falls, and surrounding villages. Among their latest contracts is one for equipping the Commercial Hotel, at Whitehail, with a double Florida steam heating apparatus, and St. Mary's Church, of this village, with the same; A. W. Sherman's new residence with a single Florida steam; McAuley Academy, at Keeseville, with a hot water heating plant, and for fit-ting J. E. Sawyer's residence with new plumbing. They have just finished a big job of plumbing in George Do-remus' residence; also in Richard Teff 's residence at Sandy Hill, and S. D. Kendrick's May street reside ce.

THE L. H. PRENTICE COMPANY, 203 and 205 Van Buren street, Chicago, Ill., are to install a steam heating plant in the Field Columbian Museum, Jack-

CHAS. RUEGE, Brooklyn, N. Y., is using a Champion atcam boiler to heat the dancing academy and billiard parlors of Albert Bantle.

THE S. WILKS MFG. COMPANY, 113 to 123 South Clinton street, Chicago, have received orders for Wilks heaters to be placed in the market buildings of Swift & Co., at Port Huron, Mich.; Oshkosh, Wis.; Indianapolis, Ind.; Springfield, Ill., and Lincoln avenue market, Chicago.

ED. SMITH, Nyack, N. Y., is using a No. 5 Champion hot water heater in his residence and No. 4 Champion for hot water is being used in the Sisters'

THE KELLY & JONES COMPANY, 48 to 52 North Clinton street, Chicago, have the contract for the steam heating in Cumpock Hall, Northwestern Univer-sity, Evanston, Iil.

J. Loonie, at Eighty-fifth street and Amsterdam avenue, New York.

L. J. GRIFFIN is putting in a new steam heating apparatus for Fred. King, at Barre, Vt.

T. W. CORBETT, New Haven, Conn., has the contract for the plumbing in a fine residence being erected by bank president Arthur D. Osborne.

DIRBLE & HURLBURT, West Winsted, Conn., have been awarded the contract to do the plumbing in Frank Curtiss' new house on Hinadale avenue.

THE BOARD OF SUPERVISORS met at New City, N. Y., and awarded the contract for heating the new jail to Bedell Bros. of Haverstraw.

E. J. RAWLINS, Salem, Mass., has been awarded the contract for putting in the heating apparatus at the addition to the Carlton School, he being the lowest bidder.

THE CHICAGO HEATING COMPANY, 40 North Clark street, Chicago, have the contract for ateam heating in the Baptist Hospital, Center street and Racine avenue.

JOHN P. SCHAFFER, heating and ventilating engineer, 18 Wood street, Pittaburgh, Pa., reports the outlook for the future as exceedingly promising. Among dwelling houses recently fitted up by Mr. Schaffer with the Novelty hot water heater were those of J. L. Scott, Edwin street, Pittsburgh; James Booth, Boquet street; Mrs. J. S. Hanna, Friendship and Negley avenues; H. C Bair, Negley and Baum streets, and many others. Quite a large contract secured by Mr. Schaffer recently was the steam heating for the shops, office building, freight and passenger stations of the Central & Pittsburgh Railroad, at Elkins, W. Va. Mr. Schaffer also has the contract for the steam heating for a hotel and hank at the above named The exhibit of Mr. Schaffer at the Pittsburgh exposition is most conveniently arranged and attracts a great deal of attention from the visitors. The exhibit consists of a full line of Novelty furnaces for hot water, steam and hot air heating; also a range which will burn either coal or natural gas.

R W. DARBY of Georgetown, D. C., was awarded the contract for the plumbing and ateam fitting work for the barracks and officers' quarters to be built at Fort Myer.

Amono the contracts recently taken for ateam heating by the Theo. Jacobs Company, 72 and 74 Market street, Chicago, can be mentioned the following: Oakenwald apartment building of B. Tobin, Thirty third street and Cottage Grove avenue; building of I. Stein, 415 Madison street; apartment building of Miss Stevens, Forty-fourth street and Cottage Greve avenue.

OLDS & WHIPPLE, Hartford, Conn., have the contract for the heating and plumbing in the residence being built by G. A. Kellog.

E A. KUHNLEY of Rockville, N. H., has contracted to pipe Park Building for steam heat. Steam will be supplied from the hoilers in the hotel building.

H. A. R. DIETRICH, Bethlehem, Pa., who installed the steam heating plant in the Municipal Building, one morning last week got up stram in the boiler and tested the pipes and radiators. In a short time the entire building was comfortably heated. Fifteen pounds of steam were used to test the radiators, which are of the latest improved type.

Cold air is admitted at will through an opening in the wall immediately beneath each radiator. The boiler now in use is only temperary; the boilers which will be used permanently are not yet ready to be put in place.

THE WALCOTT-HURLBUT COMPANY, 175 and 177 Lake street, Chicago, are to supply the Siphon Eduction closet ranges for the Illinois Central depot, South Water street.

I. B. Davis is building a \$25,000 residence at Hartford, Conn., and the plumbing is being done by W. J. Pinney, who is using Sanitas fixtures, porcelain baths and nickeled work throughout. Mr. Pinney also has the plumbing of Andrews & Peck's seven tenement block on Kingsley street.

MRS. M. MEYER, Selma, Ala., is about to erect a four story crice building to be heated by steam.

THE LITHUANIAN CATHOLIC PARISH, at Waterbury, Conn., is to build a new church that is to have a heating plant.

M. J. Daly, Waterbury, Conn., has the contract for heating the new achool house and will install the hot water system of Hopson & Chapin, New London, Conn., using a large Pequot boiler.

B. D. DUGGAN, 207-209 Lake street, Chicago, is to place six Richmord warm air furnaces in the apartment building of E. H. Comer, 62-64 North Central Park avenue.

MURRAY & MAHER, New London, Conn, have taken the contract for the plumbing and heating of F. II. Parmelec's new house. They will put in one of the American Boiler Company's Soleil heaters. They also have the plumbing of Walter C. Brown's double house and the plumbing and tinning of the hospital addition.

The Foskett & Bishop Company, New Haven, Conn., have completed the heating and plumbing in the residence of L. A. Beecher and are doing the heating and plumbing in the St. Anthony Hall. They also installed a hot water heater in the house of Mrs. D. C. Lombard.

J. GILLIE, Kingston, N. Y., has received the contract to put the atcam heating apparatus in the Kingston Opera House Building.

HECTOR CHAPMAN, Glastonbury, Conn., has the contract to heat John Lave's new house by ateam. He will put in a No. 2 Plummer heater.

THE TOWN HOUSE COMMISSION OF Cumberland, N. H, has awarded the contract for the ateam heating apparatus to the Pawtucket Steam & Gas Pipe Company. The contract calls for two 8-foot boilers of the Allen make. The gas piping has been awarded to Otts Skinner and the plumbing to George W. Thornley of Providence.

B. D. DUGGAN, 207 Lake street, Chicago, has closed a contract for placing a No. 55 Victor Richmond steam heater in the flat building of Miss Fltzgerald, 286 Homan avenue.

CLIFFORD & HOOD of Concord, N. H., have been awarded the contract for installing the steam heating apparatus in the new Catholic church in Peterboro.

Daniel Hoddon of Somersworth, N. H., has the contract for putting the heating apparatus and the plumbing into Dr. Wallace's new house.

CHAS. J. RILEY is erecting at 6032 Indians avenue, Chicago, a two-story

apartment house, to be heated by steam.

AT THE SPECIAL TOWN MEETING held last week in Berwick, N. H., it was voted to put in the direct system of steam heating in the new high school building.

THE CARMAN, THOMPSON COMPANY of Lewiston, Maine, have the contract to steam heat the new Garcelon Block in Lewiston.

THE NEW BUILDING of the Helping Hand Society, at Fifty-fifth street and Ninth avenue, New York, will have a heating plant installed by Frank Dobsen, using a large electric boiler.

McCall & Stevens, Chippewa Falls, Wis., have the contract to put in steam heating apparatus in the Ferguson Block.

P. II. Crowe will erect at Fortyninth street and Calumet avenue, Chicago, a 50 x 70 feet three-story apartment house, to be heated by steam.

THE CONTRACT has been awarded for building a high school building at Temple, Texas, which is to have a heating plant not yet contracted for.

THE WALSH HOLYOKE STEAM BOILER WORKS, Holyoke, Mass., have just been awarded a contract by the city of Medford to build a steel stand pipe 35 feet in diameter and 60 feet in hight that will require about 75 tons of steel.

SOTTER BROS., Pottstown, Pa., have been awarded the contract for the steam heating plant for the City Hall.

M. II. CRANE & Co., Cincinnati, Ohio, were awarded the contract at \$1635 for heating the City Building, at Urbana, Ohio.

GEO. L. ROOD, 79 Lake street, Chicago, is to place Royal warm air furnaces in the eight houses of T. G. Dickenson, Prairie avenue and Sixtieth

GEORGE FRANKLIN, 142 Centre street, New York, is remodeling the steam heating plant in the large dry goods establishment of Ehrich Brothers, at Sixth avenue and Twenty-street, New York.

THOMAS WEATHERED'S SONS, 244 Canal street, New York, are erecting a conservatory in connection with the residence of Jacob Lorillard, at Westchester, N. Y. They are also constructing a greenhouse of three apartments for H. R. V. Kennedy, at Hempstead, L. I. Both of these buildings will be heated by Weathered's boilers and their system of hot water heating.

William E. Correll, Lakeville, Conn., secured the contract for heating and plumbing the new cottage at the Hotchkies School, at Lakeville.

THE ALBERENE STONE COMPANY, 217 Lake street, Chicago, are to furnish 32 laundry tube for the flat building of Dr. Bash, Jackson boulevard, near Halsted street.

THE AMERICAN RADIATOR COMPANY, 111-113 Lakestreet, Chicago, are to furnish American radiators for the elevenstory Hennen Bullding, New Orleans, La

Stevens & Gilchrist, Wilkes-Barre, Pa., report a considerable amount of work on hand. In Wilkes-Barre they, are plumbing and heating the residence of Samuel Walten, using a No. 521 Richmond hot water heater with 600 feet of radiation; also the double residence of N. B. Weil, using two No. 50 Richmond Victor heaters, with 1100 feet of radiation. The residence of T.

M Dollard is likewise to be heated with a Richmond boiler. They have also a good deal of work curside of Wilkes-Barre, including the building for F. A. Kare, Minooka, and another building for W. H. Leisenring, at Nanticoke. The plumbing goods to be used in these buildings are made by Henry Huber & Co.

The Supervising Architect, Chas. E. Kemper, at Washington, D. C., will receive bids until November 13 for a low pressure steam heating and ventilating plant for the United States Court House and Post Office Building at Sioux Falls, S. D.

F. I. BRAY, Derry, N. II., has taken the contract to put the steam heating apparatus into C. W. Abbott's house, in which he also did the plumbing.

WICKS, HUGHES & Co., Utica, N. Y., have secured the contract for doing the plumbing at the Butterfield House. It is said to be one of the largest plumbing contracts ever let in Utica.

BYRNE & DREW, Redlands, Cal., bid \$2923 and were swarded the contract for a steam heating plant for the asylum at San Bernardino, Cal., and Geo. M. Cooley, San Bernardino, secured the plumbing contract for \$1550.

G. K. Shoenberger, 97 Washington street, Chicago, has the contract for steam heating in Judge Lambert Tree's unique Studio Building, at State, Ohlo and Ontario streets.

THE BAKER & SMITH COMPANY, 193-197 Van Buren street, Chicago, are to install a steam heating plant in the Hotel Clarendon, New Orleaus, Ls.

THE KEWANEE BOILER COMPANY, 96 Lske street, Chicago, report the following sales of Haxtun base burning steel boilers: F. D. Ferguson, houses, four No. 4; H. L. Hossock, store building, one No. 12; W. W. Twist, residence, one No. 4½; S. Stevens, flat building, one No. 6½; P. J. Doyle, flat building, one No. 9; J. S. Calley, flat building, one No. 9; J. S. Calley, flat building, one No. 6½; Waubansee Club House, one No. 6½; Waubansee Club House, one No. 6½; Dunlop's new bank, Oak Park, Ill., two No. 10; S. W. Jones, flat building, one No. 4½; Keegan & McCartby, store building, one No. 9; George Eichert, for school building, one No. 10; Wm. Williams, residence, one No. 6½; Wm. Fisher, residence, one No. 6½; E. F. Henshaw, flat building, two No. 12½; Z. E. Patriek, residence, one No. 9½; James Donovan, flat building, one No. 9½.

THE contract for heating St. Mark's Church by steam has been let to L. A. Weston, Adams, Mass.

THE contract for the placing of steam heating apparatus in Engine Houses Nos. 3 and 4 was awarded by the Fire Commissioners of Camden, N. J., last Tuesday evening to Clarkson, Scott & Co. of Philadelphia.

THE new heating plant just erected by Armitage, Herschell & Co., Tonawanda, N. Y., was started up last week and was up to the expectations of the enterprising proprietors.

The contract for the plumbing and roofing of the new Gleaner Building now in course of construction in Lee, Mass., has been given to James Me-Manus of Great Barrington, Mass.

THE New Court House Commission met in Troy, N. Y., last week, and awarded the contract for putting in the fan system of heating and ventilating to Mulligan & Schermerhorn at \$8085.

## THE RETAIL STORE,

#### Trimo Giant Pipe Wrench.

The accompanying cuts represent a chain pipe wrench offered by the Trimont Mfg. Company, Roxbury, Mass. The wrench is described as having a solid forged head with detachable interchangeable gripping jawa made from a fine quality of tool steel. The chain used is the best quality of cable chain. It is explained that the head is so made

If the retailer is so unfortunate that he cannot light his store naturally let him light it artificially.

Keep the store light all the time, in dull times and in good.

Folks think they see unseen dirt in a half lighted store.

I have yet to find a first-class, progressive and profitable business run without plenty of natural or artificial illumination.

Do not try to convince the public



Fig. 1 .- Trimo Giant Pipe Wrerch.

that the chain is held securely without danger of falling out, as is liable to happen with other aimilar wrenches, while, it is stated, the chain can readily be released at the will of the operator. The wrench is made and adapted for all kinds of work and for hard and rough The manufacturers claim that 1199ge. with the wrench there is no slipping, locking or lost motion. The wrench is made in six sizes, to take pipe from \$ inch to 16 inches in diameter, with levers from 27 inches to 84 inches in On the three larger sizes the length.



Fig. 2.-Enlarged View of the Head.

manufacturers will make the length of the handle to order, with or without ring, at an extra coat.

#### Hints for Dealers.

BY AN EXPERT.

Ninety per cent, of the failures in advertising have been because the advertiser expected his advertisements to do the sciling.

The appearance of a store has as

much to do with successful business as has the advertising, the goods or the

clerks.

A fly specked electrical battery will ring just as many bells, but it won't sell well.

Rusty tools won't sell for half their value.

A little elbow grease will make a

stove worth 25 per cent, more.

The appearance of anything to be sold has as much to do with the sale as the actual intrinsic value of the article

It is just as essential, so far as selling is concerned, to have the package clean as to have the goods inside clean. Light and cleanliness are the two

great essentials to selling.

A dark store is never as profitable as a light one.

that your business is so solid that you can do as you please.

There never was a man free to do as he pleased. You have got to do as others want you to do, or do no business.

A dirty, ragged clerk can sell goods, but a well dressed clerk, who isn't a dude, can sell more.

A poor but well brushed suit of clothes, with a clean collar and a pair of polished shoes on a clerk have almost as much to do with the selling quality of that clerk as has the ability of the clerk.

Do not make the mistake that some storekeepers do, of having the front of the store light, bright, clean and attractive, and the back of the store like the inside of a cave.

Dusters and brooms don't wear out

very rapidly.

Some folks believe that in economy is the success of business, that what you save is as important as what you earn-and they are right. But the successful business man, in not forgetting to save, figures that what he makes has as much to do with his success as what he saves.

It is better to put out \$1000 and take in \$2000 than put out \$500 and take in \$1000.

Everybody knows that profit is the difference between expenditure and re-ceipt, and yet fully one half of the business men make more effort to cut down expenses than to increase business.

#### A Stove Dealer's Conscience.

"We are expected to prevaricate some," said a retired atove dealer. is absolutely necessary if a man would succeed. If you don't you lose your trade. Now, this is the work time of the year for us. It's all on account of the weather. If there is one cold day we women all wanting their steves re-psired. Some want new brick, others want to swap an old stove for a new one, while many want grates of all descriptions. We don't keep such things in stock, and if they are not ready when you premised them (and they are not) there is trouble. You don't want to lose their trade, so you tell them you had to order the brick from Pennsylvania, or that they are all out of that

kind of grate at the factory. women ask hundreds of foolish questions: 'Why does the smoke come out of the doors? What's the best kind of coal to use in that stove? Will that stove bake bread on the hottom?' and things like that. Most of these people have not used their stoves all through the summer. They have been using gas stoves. Their stoves get clogged up with soot. The grate cracks and the brick falls out. It keeps me in hot water at the hegipning of ever fell and water at the beginning of every fall and it takes me the rest of the serson trying to square myself with my conscience."

#### Nail, Washer and Nut Bins.

Among the many convenient fixtures in the Hardware establishment of Frank Miller, Johntown, N. Y., are the Bins for Nails, Washers and Nuts represented in the accompanying illustration. The counter is 34 inches high, 3 feet wide and 15 feet long, made of white wood in natural hard oil finish. There are 32 openings for Nails, each of which is 12 inches high, 13 inches wide and 16 inches deep, holding a keg of Nails each. The special feature of the counter, however, is the provision for Nuts and Among the many convenient fixthowever, is the provision for Nuts and Washers under the Nails. The openings for these goods are 8 inches high and 13 inches wide, extending back to the center of the counter. The sizes of Nails, Nuts and Washers are marked on 2-inch strips running lengthwise of the counter separating the tiers of bins.



Nail, Washer and Nut Bin.

In connection with the Nail bins a chute is used for filling the bins. chute is funnel shaped, 20 inches long and 4 inches high, made just wide enough to slide inside the bins. On the lower end of the chute are iron catches to hold it in place in the bins and at the upper end are sliding legs adjustable in length for use on the upper or lower bins. Nails are emptied from the keg into the chute by one man and alide into the bins.

BRIGGS & FORD, Fredonia, N. Y., make a specialty of the goods manufactured by the Fuller & Warren Company of Troy, N. Y. They carry in stock a fiae line of P. P. Stewart Signators nal Diamond, Germania and Diamond ranges; the Art Splendid and the Splendid Stewart heaters, together with

the company's hot air furnaces. The firm also handle the Electric oil heating and cooking stoves and the Eagle oil heaters.

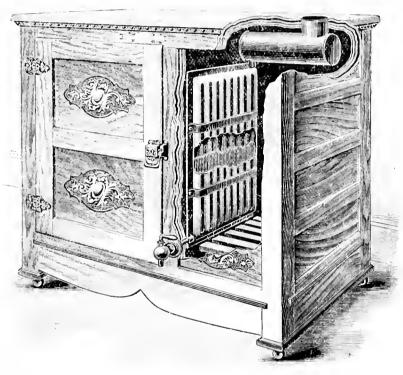
## Automatic Water Cooler Attachment.

The Columbia Refrigerator Company, Northville, Mich., are offering an improved water cooler attachment in connection with their refrigerators, of which a cut is shown herewith. The cooler is described as having its sides made of corrugated copper sheets with both surfaces tinned, and a flat sheet

proved Roaster and Baker. It is a pictorial representation of the article, the cover of which when raised discloses a turkey in process of roasting. On the unside of the cover is a list of the sizes manufactured and their prices.

#### Christensen's Line Fastener.

The line fastener shown herewith is offered by Herman C. Larsen, 23 East Fourteenth street, New York. The fastener is cast in one piece and galvanized. In use the clothes line is passed through the fastener as shown



Automatic Water Cooler Attachment.

riveted between them, dividing the cooler into two compartments. The cooler forms the division between the ice chamber proper and the storage chamber of the refrigerator. From the upper rear corner of the cooler a pipe extends upward to the storage tank, which is placed in the upper back corner of the ice chamber. It is explained that when the apparatus is filled the cooler operates automatically, and that the water is kept in constant circulation from the fact that the water in the side of the cooler next to the ice will be colder than that on the side next to the storage chamber. This will cause the water, it is further explained, to fall on the cold side and to rise on the warmer side, the openings at the top and bottom allowing the water to pass freely from one compartment of the cooler to the other. The cooler, it is pointed cut, is only 1; inches in thickness, leaving a thin but large body exposed to the ice, cooling it quickly and causing a rapid circulation. When water is drawn from the faucet it is immediately replaced in the cooler from the atorage tank above. The point is made that the device is especially valuable where the water is so impure as to make boiling it before using a wise precaution. It also obviates the necessity of putting ice, with all the im-purities which may be concealed in it, into the water itself.

MATTHAI, INGRAM & Co., Baltimore, Md., are sending out a novel folder descriptive of their Maryland Im-

in the cut and the end drawn through the open slot. This binds on the rope above, preventing slipping. It is explained that the fastener insures a tight line, which may be instantly loosened when desired; that as the line becomes slack from usage it may be tightened in a moment, and that it obviates the

economy, and the twists and turns to which he has resorted can be continued even in better times. As a matter of economy in store renting I have found one source of relief that has not only saved one-half in my rent, but has materially increased my trade. I gave up nearly one-half of my store to a real estate man, and find that it is the most natural combination I could have made. His houses are the source of orders for lots of repairs, and the work, of course, comes to me The good results do not end even at that, for we are often obliged to be out of our offices, and with the short experience of two months we are both well enough posted on each other's affairs to answer questions and take orders or collect payments one for the other. We try to arrange it so that one or the other of ua is in the office all the time just for this purpose. Instead of taking a little narrow store that could hardly be seen, we have one 20 feet wide at \$30 a month. The tin work is done in the rear, thus leaving the front clean. My part of the establishment is kept as neat in appearance as the other. side of an ordinary store gives all the showroom that is needed for a moderate trade. In large cities where the dry goods stores keep house furnishing goods it is absolutely useless to compete, for they buy in such quantities that no small dealer can avoid injury in aelling against them, for he must overcharge. We have got to stick to our trade, and it is a good one if properly attended to. If any objection is made to my plan, as for instance that it is not easy to find a real estate man, I will say that there are two of them here to one stove man, and the latter has himself to blame if he cannot keep himself and his part of the store in such shape that they will feel at home in his company. In my case it works to a charm and has come to stay.

A beautiful soft bronze color is now imparted to metals, says the New York Sun, by rubbing with a mixture of bloodstone and graphite, the application being made with a brush. Antique green effects are secured by dipping the metal into a solution of 10 parts by weight of salt, 10 parts cream of tartar, 10 parts acetate of copper and



Christensen's Line Fastener.

necessity of tyling the line, the knot of which pulls tight and is difficult to untie.

## Economy in the Retail Stove Trade.

A member of the retail stove trade doing business in the City of Churches, and who is well qualified to speak on the subject about which he writes, sends us a letter from which we quote as follows: The past year or more of poor business is not without its lesson to the retail dealer, who has had to study

20 parts of carbonate of soda, in 200 parts of vinegar. The satin finish is produced by green vitriol of copperas and subsequent treatment with wax. Old green is obtained by several coats of acid and a final coat of wax.

Experiments recently made at the laboratory of the Underwriters' Electrical Bureau in Chicago have demonstrated the destructive effect of electric currents on subterranean piping. Iron piping, through which the current was directed in this return, was badly pitted after being subjected to the treatment for the short space of 1333 hours.

#### SCRAP

FOLLANSBEE BROTHERS COMPANY, Pittsburgh, Pa, successors to James B. Scott & Co., advise us that, although their Blairsville rolling mill is shut down at the present time pending adjustment of the wage scale, their factery in Pittaburgh is in full operation manufacturing their special guaranteed brands of rocting plates-namely, Scott's Extra Coated, and Triumph Old Style. These plates they are still in a position to furnish with comparative promptness. The prices on these plates have been revised, but, nevertheless, Messra. Follansbee state that they are determined to maintain in them the same high qualities adhered to for these brands in the past. The new corpora-tion of Follansbee Bros. Company is formed of the surviving partners of the firm of James B Scott & Co., with associates. B. G. Follansbee is president and Wm. U. Follansbee accretary and treasurer of the concern. Their address is 122 and 124 Second avenue, Pittsburgh.

THE AMERICAN TIN PLATE COMPANY, Elwood, Ind., paid over \$6000 in wages to their work people last week. The amount will be increased in the present week, the new mills having been put into operation with an increased force.

THE FALCON SHEET & TIN PLATE COMPANY, Niles, Ohio, are reported as about to enlarge their tin plate works very considerably. The erection of a tinning house has been begun and a new pickling machine is being installed.

TIN AND TERME PLATES in bond in New York warehouses on September 30, 1894, were valued at \$439,128, against \$383,867 on August 31 last and \$190,849 on September 30, 1893. The total quantity in bond on the last day of September, 1894, was about 200,000 boxes. This amount had accumulated pending the reduction of tariff on October 1, and most of it has since been withdrawn from bond.

THE CINCINNATI Commercial Gazette reports that Edwin Stevens, formerly of Cinciunati, and Col. I. L. Morris of Hammond, Ind., have about closed a deal to locate a tin plate plant at Tipton, Ind., 10 miles west of Elwood. The proposed plant would employ about 300 hands.

A CABLE DISPATCH from Swansea, Wales, reports that 5000 tons of tin plates were loaded at that port on October 16 on board steamers bound for the United States. The stocks of tin plates at Swansea are lower than they have been for many months past.

A LEAFLET distributed by Sidney Shepard & Co., Buffalo, N. Y., calls attention to their Seneca brand of American roofing tin, described as an oil finished, squared plate of superior quality.

THE WORKS of the Blaina Tin Plate Company, Blaina, Monmouthshire, and those of the Resolven Tin Plate Company, Clyne, Glamorganshire, have started up this week, the former having an 11-mill capacity and the latter 3 mills. Other large Welsh tin plate works are reported to be on the point of resuming after shut downs of varying lengths.

The Mobewood Company, manufacturers of tin plate at Gas City, Ind., have started up their plant with a full force at the old scale of wages, with the agreement that they get the advantage of any wage reduction at other works.

Some time ago mention was made in these columns of the granting of a charter of incorporation to the Monongahela Tin Plate Company of Pittsburgh. Additional information indicates that this concern are closely identitied with the Oliver Iron & Steel Company of that city, but at the same time it is a distinct organization. Contracts have been let to the Robinson-Rea M'g. Company of Pittsburgh for the erection of nine hot mills 24 x 32 inches in size. The plant of the concern will be located on the site formerly occupied by the Fifteenth Street Mills of the Oliver Iron & Steel Company, all the buildings having been dismantled with the exception of one plate mill. The engines formerly used to drive the mills of the Oliver Iron & Steel Company will be used to drive the mills of the Oliver Iron & the mills of the new concern. It is proposed to engage in the manufacture of tin and terns plate on an extensive scale, and contracts for the necessary additional machinery, such as tinning pots, pickling machines, &c., will likely be let in a short time. II. W. Oliver of the Oliver Iron & Steel Company is understood to be prominently identified with the new venture.

THE NEW TIN PLATE MILL at Anderson, Ind., is being built by the National Tin Plate Company. The dimensions of the main building, now under construction, are stated at 87 x 486 feet. Six mills are to be built at once, but the project contemplates 12 in all.

GROUND was broken on the 9th inst. for the erection of buildings for the new tin plate mills, at New Lisbon, Ohio. The main building will be 160 x 240 feet. There will also be erected three smaller buildings, each having dimensions of 100 x 160 feet. The establishment will have four sheet mills and a finishing department.

H. R. DE MILT & Co., tin plate and metal merchants, 238 Water street, New York, are distributing blotters in many colors advertising the merits of the Cleeve brand of roofing tin. These are referred to us as imported plates, manufactured by the old process, hand dipped and very heavily coated. Messra. De Milt & Co. are also agents for the sale of the Llanlode roofing terne, as well as for the well known American terne plates, Laufman's Apollo.

GOLDSMITH & LOEWENBERG, New York and Portland, Ore., the well-known importers and jobbers of tin plates and metals since 1871, have about perfected their arrangements for the erection of a tin plate plant at New Kensington, Penn. This is a vigorous and growing factory town, about 18 miles from Plttsburgh, on the Allegheny River, favorably situated for both river and rail transportation. The contracts have been awarded for a four-mill plant with eight-mill power, to allow for increased capacity as occasion warrants. Ground was broken October 20, and the company about to be organized, with Philip Goldsmith as president, expect to turn out goods by February 1 next. The capacity, we are advised, will be 60 tons of tin plates per day. From 200 to 300 people will be employed at the start, and the process will begin with the billet, and followed through the various stages of rolling, &c., to the finished plate. Distributing points will be Pittsburgh, New York and Portland. Ore.

Child labor has been aboltshed in the large Diamond Plate Glass Works, at Elwood, Ind.

### Trade Notes.

The Windows of the large store at the Havemeyer Building, corner of Church and Dey streets, New York Church and Dey streets, New York City, in which is located the Eastern office of the Pittsburgh Reduction Company, manufacturers of Aluminum, present a spectacle which attracts the attention of every passer by. In them are displayed Aluminum in every shape and form, Ingots, Bars, Sheets, Wire and the metal manufactured into an extraordinary variety of articles. A visit to the store will give an excellent idea of the multitudinous uses to which the new metal can be put. The store, which was opened last month, is the only establishment of its kind in the East devoted exclusively to Aluminum. James C. McGuire is the New York agent of the Pittsburgh Reduction Company. Mr. McGuire says that the business done in the short interval of time since the store was opened has largely exceeded expectations, and already threatens to outrun the capacity of the present store.

GEO. E. MERRY, 535-547 West Fifteenth street, New York, whose advertisement appears in another column, will carry on under his own name the Tin Plate and Metal business lately conducted at the same address by the firm of Merry & Clark, and not under the firm name of Merry & Co., as stated in a former issue. Elton W. Clark has resigned from the concern.

T. M. Barnes of the Acme Wire Works, Bridgeport, Conn., has recently completed a large job of wire work for the Government Building in New Haven.

F. Borcler, St. Louis, Mo., has closed a contract for covering the cylinders, pipes, &c., of the Worthington pumps at the Chain of Rocks with the Magnesia pipe covering, for which he is agent; also with the Kupferle Bros. Mfg. Company for covering the steam piping at the same plant.

THE PACKARD ENAMELING COMPANY, Warren, Ohio, send circular letters to the trade announcing that all their Pail Woods, Tea Kettle Handles and other goods of like character produced by their factory, are now inspected after being enameled, and every piece requiring it is reamed and thus perfected in that respect. They have recently improved and doubled their facilities for the manufacture of Pail Woods. They also direct attention to their line of Handles and Knobs.

D. SAUNDER'S Sons of Yonkers, N. Y., manufacturers of Pipe Cutting and Pipe Threading Machinery, have begun the erection of a four-story brick addition to their factory. It will have a frontage of 108 feet and a depth of 95 feet.

THE COLUMNUS WIRE WORKS, Columbus, Ohio, state that they are behind with orders and are now working more men than at any former period in the history of the concern, but still find some difficulty in securing workmen such as they require to do their special fine work. They say they have a good trade in all their Wire Specialties and regular product.

The pottery industry at Wheeling, W. Vs., which resumed work about a month ago at a reduction of 12½ per cent. in the wage scale, is reported to be very active, and as giving employment to more skilled labor than ever before.

# STOVE TRADE NOTES.

The New York Stove Trade.

The cold wave which spread over this section on Monday and has continued with only a little abatement all the week has made a vast difference to the local stove trade, and the hum of business on account of it has been sweet music in the ears of manufacturers and retail dealers as well.

The atove trade in September and the first of October was a disappointment to all concerned in it, and was less than during the same period in 1893. The volume of the September trade was less than in September for several years past, and the warm weather in connection with the general depression was undoubtedly the cause. But very few stock orders were placed and half the dealers in the city did not take enough interest in the stove business to bring out their stoves carried over from last year and put them on their sample floor. Indifference pervaded the whole retail trade, due in a large measure to the knowledge of the retailer of the conditions, means or circumstances of his customers or of the people in his neighborhood. The effort of salesmen to provoke enthusiasm among the dealers was fruitless, and they took but little more interest in winter stoves than they displayed in July. Nobody was looking for stoves, nobody inquired about them, they said, and all conditions pointing to prospective sales were lacking.

If the trade, however, continues throughout October as it has been during the last week, the volume of it will probably be as much greater than October, 1893, as September was less. That the warm weather was responsible for much of the falling off in September sales there is no doubt, as the repair business, which last year increased as trade in stoves declined, was this year light itself, while, considering the continuation of hard times, it should have been much better. There are several elements which go to show that the trade for the whole fall will not be very satisfactory to the manufacturers, as shipmenta were delayed so long that many countermands have been received and continue to be received from manufacturing districts in which the demand for stoves has not developed as expected, or has been as limited as was feared when the order was placed. The hope of the trade is, of course, in the weather. New atoves will not be purchased because the ones in use look badly, but because they are unfit for use. Bad as they may be, they will not be renewed unless the weather is cold

enough during the fall to indicate a long and severe winter, which it would mean suffering to be unprepared for.

#### The Chicago Stove Trade.

The conservatism of country merchants, which made business so dull during the summer months when advance orders are usually placed, has caused the stove trade to become quite active at this time. Almost without exception, the Chicago stove houses report a very good volume of business. Merchants who were very slow about placing first orders, and were almost inclined to think that stoves would be unsalable this fall, are now coming in with good lists and are of course urging prompt shipment. It rarely happens that more than one or two of a kind are wanted, but in numerous instances the quantity covered amounts to a carload. The caution still shown in confining orders to so few of a kind indicates that merchants are sure of disposing of them, if indeed they have not sold them in advance of their receipt. This argues a healthy state of trade, as there is more certainty under such circumstances of the goods being promptly paid for when bills mature. Up to the present time the volume of business is believed to be far ahead of last year. It will be remembered that the closing months of 1893 covered a period of gloom and discouragement in the stove trade as well as in other lines of business. The shock of the panic of June was still severely felt, and predictions were rife that the worst had not even then been seen. Distrust existed everywhere, and if a merchant had sufficient faith and courage to order a fair bill of goods his credit was obliged to undergo the test of the severest scrutiny.

This condition of affairs has been radically changed. 'Confidence has been restored in great measure by the lapse of time and the steady improvement in commercial and manufacturing lines. Instead of regarding the future with uneasiness and daily expecting something still more direful than had happened, manufacturers and merchants are again looking forward to a betterment of existing conditions. Even the crop failures in some sections could not check the growth of confidence in the future, as it was seen that the misfortunes of one set of farmers would be beneficial to another set. It was not a national calamity like the monetary panic which had upset all calculations. The better feeling is elearly perceptible among stove manufacturers when they

attempt to forecast the immediate futurc. They look forward to a continuance of the good trade in November and December, when second orders are naturally to be expected as a result of the conservatism shown in present purchases. Some go so far as to say that December will be a very heavy month and a good trade may be expected to extend beyond the first of January. If this should fortunately prove to be the case, the year 1894 will wind up with a far better record than was deemed possible in July and August. And yet there is no "boom" nor the semblance of one. It is simply crowding the business of the year into a somewhat later period than usual.

The manufacturers of oil heaters are doing remarkably well. Their sales are running ahead of those of last year, and some concerns appear to have struck a phenomenal gait. It is a feature of this trade that it seems to have opened up a genuine want of the people without interfering with the sale or use of other heating appliances. Oil heaters are being purchased very freely by those whose houses are heated with furnaces or even steam and hot water, as well as stoves. Their use has grown rapidly in recent years with the perfection of business, the avoidance of smoke or smell of oil and the evolution of great heating capacity. As the oll lamp has worked its way into houses illuminated by gas or electricity, so the oil heater is working its way into houses heated by what are usually considered thoroughly satisfactory methods.

Manufacturers are now making their plans for the coming gasoline stove season. They promise improvements which, when shown, will be highly appreclated by the trade.

## The Hobrecker Stove Company

of Omaha, Neb., favor us with a copy of their new 148-page catalogue of stoves and ranges. This is an exceedingly creditable publication and its is sue marks the company as men of enterprise. They handle the following well-known goods: Crown and Globe line of the March-Brownback Stove Company, Pottstown, Pa.; Golden Rule line of the Duffy-Trowbridge Stove Mfg. Company, Haunibal, Mo.; Norman line of N. H. Galusha, Rochester, N. Y.; Ideal line of the Cleveland Steel Ringe Company. Cieveland, Onio; stoves and ranges of the Leibrandt & McDowell Stove Company, Philadelphia; the Arlington line of the Joseph Bell Stove Company, Muncie. Ind.; the Victor line of the Victor Stove Company, Salen, Ohio. They are also Western agents for Insurance Vapor Stove

 Company. The ranges illustrated are the New Norman, Model Norman, Victor Model, Golden Rule, Welcome Globe, New Expert, Western Globe, Cozy, Olilo. Victor Grand, Farmer's Daughter, all cast ranges, and the Ideal and Grand Ideal steel ranges. In cooking stoves they show the Victor Prize, Golden Rule, Western Globe, New Home Rule, Home Rule, Arlington F. Victor Favorite, Mystic Norman, Farmer's Daughter and Elm Rule. In heating stoves the catalogue presents the Crown Circulator, Imperial Norman, Norman Jewel, Peerless Norman and Royal Norman base burners; Junior Crown and New Crown return thue; New Crown, Junior Crown and Victor Jewel direct draft; Norman Queen, Norman Cottage, Victor Cottage, Victor Lark and Rocket parlor stoves; Arcola dining room stove, Art Frankliu open and heater, Sir Franklin fire place heater, Franklin, Franklinite, Magnet Franklin, Golden Rule and Omaha oaks, Polo sheet iron, Polaris portable heater, Po'aris cylinder, Iron Age and Red Jacket cannons, Morning and Evening Light Todds, &c. Other goods shown are the Crown furnace, Majestic oil heaters, Spleudid oil heaters, Novelty oil heaters, lamp stoves and stove furniture. The company's trade week. pany's trade mark is unique, being a rebus founded on their name. A man is shown breaking a hoe over his knee, A man while beside him stands a stove, the whole being inclosed in the letter C with a small o as an ornamental appendage.

## The Peck-Williamson Heating & Ventilating Company,

formerly known as the Bennett & Peck Heating and Ventilating Company, of Cincinnati, have issued a valuable publication entitled, "Warm Homes in Wintry Winds and Frigid Climes." It is a manual for salesmen and local agents, and contains a great deal of information, compiled with much labor and research by W. II. Martin, manager of the company's Chicago branch, at 82 West Washington street. The first 27 pages of this work are devoted to matters directly pertaining to Favorite furnaces. These are presented in such a way as to impress the reader with the belief that Favorite furnaces have been designed to meet the special requirements of warm air heating. point is taken up and thoroughly discussed, cogent reasons are given for peculiarities in design, and illustrations are happily conceived to back them up. Not only are the several standard styles of the furnace shown, but views are given of batteries designed for heavy work. A battery consists of two furnaces, which are set separately and have separate casings, their tops being united in a common heat chamber, from which, it will be seen, a large number of heat pipes can be led to heat many 100ms. Illustrations are given of both portable and brick set batterics. School room ventilating heaters and school heaters of very large capacity are also shown. The company make a laundry dryer and iron heater, to meet the growing demand for euch a convenience in modern house building. Some 25 pages are devoted to tables of use to furnacemen. These comprise standard price lis's of registers, standard furnace fittings and special fittings, together with tables showing net cost at different discounts from list of registers, borders, register faces and registers and borders combined. These

tables will be very convenient to dealers and save much time and annovance. Tables relative to the circulation and conditions of air, which are of great value for the successful operation of heating and ventilating apparatus, comprise the estimated air capacity of pipes and registers, the weight of air at various temperatures, the velocity and pressure of wind, the expansion of air, the number of cubic feet of air that pipes will discharge per minute, the relative value of non conductors, the gauges and weight per foot of black sheet iron and galvanized sheets, the area and circumference of circles, &c. Estimating blanks and forms of contracts make a fitting conclusion. The book is handsomely printed and tastefully bound.

#### The Grander Stove Company

of Royersford and Philadelphia, Pa., favor us with a copy of a very neat catalogue and price-list which they have issued from the press. It is a volume of 90 pages, carefully printed on calendered paper, is profusely il-lustrated and bound in colored covers, with embossed side title in silver and bronze. The frontispiece is a bird'seye view of the company's works. The makers state that for the accommodation of the trade tributary to Philadelphia, New York, Buffalo and St. Paul, they have established agencies in those places. The positiou of honor in the volume is given to the Bride, a first class six-hole range, for coal or wood. Some of its special features are duplex grate, ventilated oven, extended fire box, heavy brick linings, large ash pan, patent oven door opener, automatic oven shelf and ornamental base. It is followed by the Mentor, adapted for hard or soft coal or wood; the Aline, Major, Malta, Lenor, Umpire, Iona, Garfield, St. John and Junior ranges. The Junior is made with horizontal boiler, elevated above the high shelf. The slove is made with right or left oven, and with five or six boiler holes, as may be desired. The cook stoves are represented by the Oakland, Black Warrior and Miner's Home. The second half of the catalogue is given up to heating stoves, of which the Bride, a full revertible flue base burner is the first presented. During the time the stove has been on the market it has established a gratifying reputation, and the manufacturers expect for it a large sale in the future. The Volga is a double heater of attractive exterior; the Mars is a single heater made in four sizes; the Torrid is a direct draft heater for soft coal or coke, and the Milton is a new direct draft double heater. The latter is of rich ornamentation and is low in price. There is also presented an assortment of sheet iron cylinder surface burners, globe and cannon Following these we find an il stoves. lustrated notice of the Victorious furnace, made in portable form and also for brick work; illustrations of open grates and fire place plates, a varied assortment of gas cooking and heating stoves, with directions for using; price lists of hollow ware, mica, fire brick, &c. An alphabetically arranged index is a feature of the closing pages.

An English manufacturer is laying great stress on the improvement in combustion and increased efficiency of the fuel gained by the use of fuel cones. They are perforated pyramids open at the bottom and are set on the

grate projecting up into the fuel, diffusing a greater quantity of air that is heated through it.

#### Selling Furnaces.

BY HOT AIR.

He came rushing into the salesroom when I was busy, and, saying he hadn't time to stay, poked a paper at me which I found to be an order for a furnace on an opposition house from one of our customers. He said he had promised them to come and look at "Incandes-cent," but his mind was made up to get a "Lukcwarm." I had been taking his dimensions and reckoned we'd have a "go," so I told him the order he gave me wasn't for us. This took him back a litte, and, after fumbling in his pocket, he produced another order with a written request to make him see where true merit was to be found. He was a business man with the accent on the B. that was plain, for he was about to go when I concluded to "drop the bottom" on him at once. Now, do not misunderstand that to mean price, for we never said a word about it. I said, "As long as you are here, could you spare 2 minutes and 30 seconds to investigate and imbibe the features of our furnace?" and I took my watch out. He said he could and we went to a furnace of the size his order called for and I gave him construction, erection and operation condensed as close as a No. 3 iron in a chill mold, and wound up by saying "and we can ship it to day." He laid down his duster, dropped his grip, pushed back his hat, asked for a piece of paper and drew the plans of two floors of an old roomy farmhouse that he was remodeling, and asked, "How can I heat those three rooms?" I explained three methods, saying "pay your money and take your choice." He tore up the other order and we shipped the furnace to a Congressman, and I concluded I was cut out for a lobbyist.

Ordinary methods would not have caught that order. Crisp, concise, positive points pinned it. Another time a dignified, aristocratic, yes, and rather self sufficient well dressed man stepped in and to my "Good morning" was deaf. I followed to see if I could be of service, while he never noticed but looked first at one then at another furnace, till finally he asked "What is the price of that ?" pointing to the furnace. I said, complacently, "What is that to you?" He swelled up at what he considered my impudence, asking what I meant by such impertinence. I answered, "Just what I nence. I answered. "Just what I said," at which he observed me more closely and remarked that he might wish to purchase. "Then you don't want to know the price, you want to know the furnace, for if it is not of the character and quality you want you don't care whether they sell at 1 cent a carload or \$1,000,000 apiece." I un loaded on him the experience of several years in shop, cellar, drafting room, desk and on the road, and then told him the office boy could give him prices.

Then he got square with me, saying, "I don't want to get prices. I am going home, and will tell Bill Jones the tinker to get one of these furnaces and put it in according to the suggestions of the impudent wiseacre I met here, and if it fails to do all you claim you will hear from me." Bill got a furnace from us for this man, and as it worked well I never saw him again. I afterward learned from Bill that another turnace had been selected, but after my talk ours was substituted. Selling fur naces is different from selling most anything else. It takes grit and gumption.

#### ODD PLATES.

Cole & Cole, 41 Main street, Council Bluffs, Iowa, are vigorously pushing the sale of their air tight heater, which is so made as to burn wood, cobs, straw, &c., and is claimed to hold fire for 48 hours. It is made in three sizes to suit requirements, and can be had in both smooth and Russia iron. M. M. Gowdy of Springfield, Mass., is agent for the heater in the New England States, New York and Pennsylvania.

THE DANGLER STOVE & MFG. COM PANY of Cleveland, Ohio, announce to the trade that for the season of 1895 they will offer a Process stove, possessing ments which cannot fail to interest dealers generally. The frame of the stove is made in a very substantial man-ner, with an end shelf, giving a large top surface. The rods supporting the cones to the base are fitted with thumb nuts, so that they can be easily taken out. The cast iron burner bottoms with sub flame in one are nickel plated inside and out to protect them from rusting, while the upper parts of the burners and connections are protected by cast iron covers. The cabinet ranges have an extra large burner on the steps and in connection with the ovens. Heavy brass drums and connections are used, as well as a handsome oblong brass plated tank, with separate valves of German silver with sight feed. The disk is made ad-justable, so that it may be taken out for cleaning and firmly replaced. The cleaning and firmly replaced. The manufacturers refer to the durability, style and operation of the Process stove as being such as to render it very pop ular.

THE CINCINNATI Commercial Gazette says that the stove founders at Wheeling, W. Vs., are finding a great deal more to do than was expected. Most of them are reported to be running on full time. The brightening up of business generally in that section has increased the call for stoves, and jobbers and retailers are ordering goods freely.

THE FAVORITE STOVE & RANGE COM-PANY, Piqua, Onio, are employing 300 men at their works, with a fair amount of orders in hand.

A. WEISKITTEL & Son of Baltimore, Md., have issued a descriptive catalogue of Fire King gas heating stoves for the fall of 1894. The concern for the fall of 1894. The concern enjoy exceptional facilities for the manufacture of these goods, all of which are carefully inspected and tested before shipping, and are also neatly wrapped in impervious paper and securely crated. The illustrations represent a varied assortment of heaters, covering gas grates, radiators, sheet iron cylinder stoves, burners, gas ranges, &c. The descriptive matter is ample for the purpose, and in connection with the engravings are tables giving the size of frame, style of finish, dimensions of mantel openings, price and telegraphic code words. A number of testimonials are given relative to the Fire King gas stoves and ranges, and the 42 page catalogue closes with an index, telegraphic code and reasons why gas for fuel should be used.

THE REDUCED FREIGHT RATES on stoves from Chattanooga to points in the territory of the Central Traffic As sociation went into effect on Monday of last week. The rate from Chattanooga to Cincinnati, Evansville, Ind,

Brooklyn, Ill., Belmont, Mo., Lexington, Ky., and other points in the States mentioned, is 19 cents per 100 in any quantity, the previous rate to Cincinnatibeing 57 cents in less than carload lots, and 40 cents in carloads. The rate to Nashville was reduced from 32 to 9 cents. The rate to St. Louis is now 29 cents, and to Memphis 15 cents.

THE CINCINNATI STEEL RANGE & FURNACE COMPANY of 153 West Fifth street, Cincinnati, Ohio, send us a copy of a mammoth poster illustrating the Burton steel range, which is referred to by the manufacturers as the "best on earth." The poster is printed in red and black and will form a conspicuous object in the store of the dealer handling these goods.

THE PATERSON, N. J., Gaslight Company announce \$1.50 per 1000 feet as the price of gas in future. At this price gas can be used for cooking with economy and in some cases for heating. The live stove dealer will profit by the change.

RATHBONE, SARD & Co, Wabash avenue and Randolph street, Chicago, state that their Aurora foundry is running full time and turning out a large number of stoves which are being shipped as fast as made. They are making every day a considerable number of Acorn radiators, their new air tight soft coal stove, for which the demand is fully up to their capacity. This stove is meeting with much favor in the East, shipments being made frequently to the soft coal districts of Pennsylvania. Rathbone, Sard & Co are now receiving a gratifying number of carload orders for stoves. They are beginning to think of vapor stoves and are making improvements to be introduced in their New Process stoves the coming season. Their line for next year will be much larger than ever before, and they will therefore be better equipped than at any previous time for handling their vapor stove trade, which they have now been engaged in for some twelve years, with a steadily ad. vancing reputation for high grade stoves. Their new vapor stove catalogue will be out in about a month.

The Plumler and Gas Fitter's Review of London calls attention to one deficiency which strikes and chills the foreigner in France, which is the absence of all system for heating large offices and public buildings. In most houses, even large, handsome, well built blocks, there are no arrangements for heating other than small grates and stoves. The grates and open fire places are almost invariably ill constructed. The cold is often severe in many parts of France, and cities like Lyons, St. Etlenne, Grenoble and Clermont Ferrand really suffer from the want of proper artificial heat. Surely, says the journal above referred to, if our English manufacturers of heating apparatus would but make a determined effort they ought to be able to develop a good market in France.

THE ENGLEWOOD STOVE COMPANY have been incorporated at Chicago with a capital stock of \$12 000. The incorporators are Alfred Anderson, Claus A. Johnson and Frank A. Winblad.

The Cleveland Foundry Company, Cleveland, Ohio, have met with a serious loss by fire, in which their four-story building was entirely lost. This part of their factory contained their machinery, mounting floors and stock rooms. They saved the greater part of their patterns and of their foundry, japanning rooms and tinning rooms. They

expect to be in temporary quarters at once, and will be in shape to till orders in from 20 to 30 days. Their loss is well covered with insurance. On behalf of their many customers they solicit all reasonable patience in the case of unfilled orders, and a continuance of their past patronage for the future.

THE PLYM UTH STOVE COMPANT have been increporated at Boston, Mass., with a capital stock of \$25 000, for the purpose of manufacturing, buying, selling and dealing in stoves, &c. The incorporators are Francis P. Arnold, president; William M. Bowman, treasurer, and Herbert L. Baker.

The Western Stive & Mfg. Conrany is the name of a concern incorporated last week at Milwaukce, Wis., with a capital stock of \$15,000. The company will manufacture and deal in gasoline and gas stoves and ranges as well as hardware. The incorporators are Leopold Kreielscheiner, Max Hirschfeld and G. W. Levy.

The stove plant of Eugene Munsell & Co., at Elizabethport, N. J., commenced running full time the first week of the present month. Business is good and the work of production is being pushed with more vigor than for a long time past. A local paper states that the goods shipped by the company average from 14 to 15 tons a day.

The Quick Meal Stove Company, St. Louis, Mo., advise us that all their traveling men have started out and the trade can now look for them any day. The company have made improvements in their Quick Meal gasoline atoves which will be embodied in their catalogue now in course of preparation. This company are now sending out a pamphlet containing engravings and descriptive matter of their Electric coal oil heaters. This pamphlet contains a full description of these stoves, together with prices for the different styles.

WILLIAM J. H. GLUCK of Baltimore, Md., has issued supplementary sheets and list prices of ranges and stoves which he handles. Among these may be mentioned the Ideal Fortune and Acme Fortune ranges, the True Fortune sheet iron surface burner, made as a double heater; the Art Fortune, a powerful soft coal double heater, and the Coin Fortune, a surface burner provided with Rinsom's patent duplex or draw center grate and nickel trimmings. Mr. Gluck has also issued a pamphlet illustrating the Active Fortune range, with horizontal circulating boiler; the West Side range, which is made in sev. eral sizes; the Home Fortune, the Regal Fortune and the Star Fortune, the latter being arranged for brick setting. Attention is slee given to Franklin stoves and to a line of furnaces made under the name of Popular Fortune. Other advertising matter which Mr. Gluck issues relates to ovens for oil, gas and gasoline stoves, price-list of stove boards and the Gluck cook stove, which is made by Mr. Gluck and is said to represent the culmination of 20 years' experience. We also have a pamphlet relating to Reliance and Reliance Safety gasoline stoves, and also a catalogue of over 200 pages illustrating the goods manufactured by Mr. Gluck. These include stamped ware, both deep and shallow; japanned ware, pieced tinware, brass and copper goods, galvanized sheet iron ware, milk cans, enameled sheet iron agate ware, apoons, metallic sieves, wire goods, tinners' stamped trimmings and miscellaneous supplies, hollow ware and miscellaneous goods.

SAM S. UTTER, 113 Beckman street, New York, advises us that he recently shipped one of his Sam Ranges on a long journey. It was purchased by the American Board of Foreign Missions, to be sent to Rey. Albert Foote, at Alahaabad, India. He also shipped last week six cooking stoyes to go to South Africa.

Chas. O. Lyon, president of the Thatcher Furnace Co., 246 Water street, New York, has returned from the Adirondacks after a brief vacation of two weeks. He would have remained for a longer term, but his stay was cut short by a telegram requesting his presence in the city. We are advised that the company shipped last week a number of carloads of furnaces and ranges to agents and customers in the New England and Western States.

FREDERIC W. GARDNER, Western manager of the Michigan Stove Company, is in receipt of a letter from Mr. Palmer, the company's agent at Britt, Iowa, which reads as follows: "We have a Family Garland standing here that went through the cyclone. I think \$\frac{1}{2}\$ will cover the cost of repairing it. I told the boys no other stove on earth would have stood the shock." Mr. Gardner says that his company have never recommended their stoves to withstand the effects of a cyclone, and this evidence that they will do it is particularly gratifying.

THE PENINSULAR STOVE COMPANY are now distributing display cards of a neat and striking character to be used by their local agents. They are printed on heavy cardboard. One bears the company's trade-mark in gilt on a black ground, and another has the words, "Peninsular Stoves—Furnaces—Ranges," in white on a black, making a very conspicuous sign. Manager Harrahan of the Chicago branch reports an excellent condition of trade, with a good demand for the air tight Peninsular. Dealers write that it goes out when competing stoves stand on the floor neglected.

A FURNACE COMPANY have been organized at Marion, lowa, known as the Marion Heating Company. O. M. Boyles, with Heury Dart's Sons of Rock Island and Hiram Robinson, for a number of years with the Davenport Steam Heating Company, are members of the firm. Mr. Boyles will continue to travel for Henry Dart's Sons, but will talk furnaces whenever he can find time. Mr. Robinson will act as contracting agent for the company, and is now at Nevada superintending the heating of the new First National Bank of that city. The local press predicts a bright future for the new firm.

#### Determining Size of Pipes and Registers to Heat a Given Amount of Space.

BY GEORGE D. HOFFMAN.

There is hardly a question in the erection of a furnace job that causes the amattur, and sometimes the expert furnaceman, more worry than what size the pipe and register shall be used to give the best results in the room to be heated. As the system of furnace heating is one of displacing all the air in the room to be heated, and replacing it with warm air from the furnace, it stands to reason that perfect results can only be obtained by the inlet and outlet pipes and registers being properly pro-

portioned. Leaving out the question of ventilation and simply considering the one of heat, the matter resolves itself simply into a determination as to how much sir, or in other words, how many times must the air in a given room be changed per hour to maintain a uniform temperature. The reader can readily appreciate that this depends, 1, on the amount of cooling surface in the room, and, 2. on the temperature and volume of the air coming through the register. In the writer's opinion a higher temperature than 140° F, should never be calculated on, as a higher temperature than this almost always signifies an overheated furnace, with all its attending evils.

Taking it for granted that the proper size of furnace has been selected, with power sufficient for the total amount of work, the only question to be decided is the proper volume of air required by the different rooms, which of course is very largely determined by the size of the pipes and registers; with properly adjusted pipes and registers it would be impossible to overheat the furnace with-

out overheating the house.

In order to determine the volume of air necessary to heat a given space we must determine the amount of cooling The basis for all calculations surface. of this kind is glass surface, and all exposed wall surfaces should be reduced to their equivalent in glass in making these calculations, and this result then added to the actual amount of glass will give the total amount of cooling surface in glass. The leading authorities seem to agree that with the conductibility of glass rated at 1000 the conductibility of an ordinary wall surface is about 75. If therefore we wish to reduce exposed wall surface to its equivalent in glass we simply multiply the amount of exposed wall surface in square feet by 75 and divide by 1000, adding this result to the actual square feet of glass, and we have the total amount of glass surface in the room.

The writer has demonstrated that if we multiply the total square feet of glass by one and one-half, the result will be the total square inches of round pipe and register in the room in ques-This rule, however, will only apply to average runs of plpe. If a room is particularly favored by being close to the furnace, or particularly ill-favored by being remote, the size of pipe should be reduced or increased 1 inch in diameter accordingly. Second floor rooms can be figured in the same manner, but unless the rocm is remote from the furnace, it is entirely safe to reduce the diameter of pipe 1 inch from result obtained. For an everyday rule where one does not want to stop to estimate glass surfaces, &c., the writer has found the following to be safe and conservative: First floor rooms with two sides exposed, divide contents of room in cubic feet by 25, and the result will be the area of the register in square inches. For first floor rooms with one side exposed, divide by 30. For second floor rooms with two sides exposed, divide by 30, and with one side exposed by 35

So far, in this srticle, I have simply treated of the inlet or hot air pipes and registers. As I stated in the beginning of the article, the system of furnace heating is one of displacing all the air in the room and replacing it with warm air from the furnace. When we displace the air in a room we must have a place for it to go, and in a properly constructed job of heating by furnace heat, where the air is taken from the outside, arrangements should always be

made to ventilate each and every room connected with a warm air register. In the writer's opinion the outlet register should be from one to two sizes smaller than the inlet register in all residence work, thus insuring an equable pressure of air in the rooms at all times, and doing sway with the liability of drafts from a too rapid movement of air into and out of the room. For instance, in a room where the warm air register is equal to a 10 x 14, the outlet register should not be larger than an 8 x 10. This would give a rapid enough movement to insure a uniform temperature in the room. Other sizes should be gauged proportionately.

#### CONTENTS.

litorials:	
Naming Tiu Plates	3
Rules for Hot Air Heating	3
Unsanitary Bake Houses 4	13
A Welsh Conspiracy	13
he Letter Box—	
	14
Hard Worked Fully	14
Concerning Underclountage.	41
An Unsatisfactory Fullace. Indiana.	45
Tin Plate Terms	
A Tin Root Problem	45
Sims Patent Gutter	45
Sheet Metal Patterns	45
The Cort Gas Radiator. Illustrated	45
Plumbing and Gas Fitting—	
The Culinet Boiler. Illustrated	46
Pressure Regulators	46
Aluminum Bathtub. Illustrated	46
Progress in Plumbing	47
A Medal for Plumbers	47
Traps and Vents	47
Montreal Master Plumbers	48
Battersea Polytechnie, London	48
Steam and Hot Water-	49
A Combination Heating Plant. Illus	50
Heating Notes	51
Safety Damper Regulator. Illustrated.	31
Rooting and Cornice—	
Attaching Galvanized Iron Cornice to	
an Old Brick Building. Illustrated	52
Chicago Coruice Workers	52
Flashings	53
European Wages	53
Heating and Plumbing-New Work and	
Contracts	54
The Retail Store-	
Trimo Giant Pipe Wrench, Illustrated	. 56
Wints for Dealers	. 56
A Stove Dealer's Conscience	
Nail, Washer and Nut Ilins. Illus Automatic Water Cooler Attachment	
Ulnetrated	
Christonson's Line Fastener, Illus	. 94
Recommy in the Retail Stove Trade	. 04
Seran	. 50
Trade Notes	
Stove Trade Notes – The New York Stove Trade	. 59
The Chicago Stove Trade	. 59
The Hobrecker Stove Company	. 01
The Peek-Williamson Heating & Vent	l-
lating Company	. 00
The Grander Stove Company	
Odd Plates	. 61
Determining Size of Pipes and Register	s
to Heat a Given Amount of Space	. 6:
Trade Report—	. 65
The Iron Market	
Metal Murket	. 6.
Condition of the Hardware Trade	. 0
Notice on Prices	
Metal and Miscellageous Prices	. 6
Labor Exchange-	6
Help Wanted Situations Wanted	6
DIFFREIONS AND TOR	

# TRADE REPORT.

### The Iron Market.

Pig Iron — Eastern Pennsylvania makers are endeavoring to get slightly better prices on Mill Irons, but since there is only one consumer in this vicinity the matter possesses little interest for the New York market. There has been some inquiry for prices ou standard Irons for next year's contracts, but nothing whatever has been done in that direction. The majority of founders are doing little work, and are buying in a hand to mouth fashion. Some small belated inquiries are coming in for Cast Iron Pipe. The majority of the shops are very busy and some of them are unable to take work before the end of the year, when the season practically closes. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2, at tldewater. Southern Iron, same delivery, \$11.50 @ \$12 for No. 1; \$11 @ \$11.25 for No. 2; \$10.65 @ \$10.75 for No. 3; \$10.90 @ \$11 for No. 2 Soft, and \$11.15 @ \$11.25 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$10 @ \$10.40.

Our Philadelphia correspondent ad vises in regard to that market as follows: Reports are a little contradictory in regard to the condition of the Pig Iron market. The truth seems te be that in low grade and standard Mill Irons there is something of a scar-city, but Foundry Irons are in full sup-ply. At \$10.50 Philadelphia, or \$10. \$10.25 Schuylkill and Lebanon valleys, there is as much good Mill Iron as buyers want, but at 25¢ less offers have been turned down. No. 2 Foundry of good quality is nominally \$11.50 @ \$11.75, but buyers claim that they can do better than that-in some cases less than \$11-although to cover their tracks it is called No. 2 Plain. Foundrymen say they get Iron in every way suitable for their purposes at \$11, and what-ever name may be given to it they wish nothing better than what they are getting. It is a curious feature that these transactions are nearly a'll in amall lots, carloads up to 100 or 200 tona each. Formerly a low price was given as an inducement to take a large lot, or for spot cash, or some induce-ment of that kind, but in these times the objectaeems to be to break into somebody else's trade, so that it is cheaper to make a low price on a small lot than on a large one. All the same, it un-settles prices and makes it extremely difficult to quote the market satisfactorily. General quotations are about as

 Standard No. 1 Foundry X
 \$12.50 @ \$12.75

 Standard No. 2 Foundry X
 11.50 @ 11.75

 No. 2 Plain
 10.75 @ 11.00

 No. 1 Soft
 11.50 @ 11.75

 No. 2 Soft
 10.75 @ 11.00

In the Chicago Pig Iron market trade continues active in local Coke Iron. The business now doing is well distributed, covering a good range of buyers. Prospects are excellent for the immediate future. No very large contracts have recently been placed, yet the volume is good owing to the large number of small orders. Quotations on local Irons are unchanged and there is little probability that

they will be higher. The Southern furnace companies have had better trade the past week than for a long time. Sales are reported up to 500-ton lots. Inquiries are improving for Southern Irons, and, at the same time, prices are being reduced so as to more nearly meet buyers' views and the competition from Northern brands. Lake Superior Charcoal is quiet. Quotations are given as follows for cash.

Lake Superior Charcoal	\$13.00 @	\$15,00
Local Coke Foundry, No. 1	10.25 @	11.00
Local Coke Foundry, No. 2	10,00 @	10.25
Local Coke Foundry, No. 3	9,50 @	-10.00
Local Scotch	10.25 @	<b>-11</b> .00
Ohio Strong Softeners No. 1	13.00 ത	13.50
Southern Silvery, No. 1	@	
Southorn Silvery, No. 2	®	
Southern Coke, No. 2	10.10 @	10.75
Southern Coke, No. 3	10.25 @	10.50
Southern, No. 1, Soft	10,50 @	-10.75
Southern, No. 2, Soft	10.25 @	10.50
Alabama Car Wheel	17.50 @	18,00
Jackson County Silvery	15.50 @s	16,00
Other Ohio Silvery	14.25 @	14,50

Reports from the Pittsburgh district indicate that the continued dropping each week in the price of Bessemer Pig has evidently been checked. While the output is very heavy, the maximum of production seems to have been reached, while consumption has apparently kept right up with production. There is more inquiry for Foundry Iron, but prices are unchanged. Quotations are given as follows, for eash:

The demand for Pig Iron during the week in Cincinnatti has been almost wholly from the jobbing foundries in that district, and has been freely met at previous prices. Much Iron has been melted by the Iron Pipe works, but this was all contracted for in August and September. The stove and agricultural works, while increasing their output of product moderately, continue to be restricted buyers of the raw material. While the demand for Pig Iron is comparatively small, the furnaces are so well under contract that they are not urgent sellers and are able to obtain pretty full prices for what they have to offer. While there is no urgent demand in sight, there is undoubtedly a steady increase in the consumption of Iron, and this has already cut down surplus stocks in the South and is likely to bring the market into a better condition in the not remote future. The demand from the East is comparatively small. Quotations are as

Southern Coke, No. 1	10.25 @	\$10.75
douthern Coke, No. 2	9.75 @	10,00
Southern Coke, No. 3	9.10 3	
Ohio Soft Stone Coal, No. 1	14.50 @	15.0
Ohio Soft Stone Coal, No. 2	14.00 @	14.50
Lake Superior Coke, No. 1	12.01 @	12 59
Lake Superior Coke, No. 2	11.0)	-11.50
Hanging Rock Charcoal, No. 1	16,00- 2	16.5
Hanging Rock Charcosl, No. 2	15.50 @	16.00
Tennessoe Charcoal, No. 1	13.00 @	18.50
Tennessee Charcoai, No. 2	12.00 @	12.50
Connected Committee		

The increased production of Pig Iron is making itself felt in St. Louis in prices, which continue to be shaded. No large sales are reported, but the number of moderate sized lots which are being taken is increasing, so that the total business is fairly satisfactory. No. 2 Foundry is quoted at \$10, f.o.b. cars St. Louis, and it is reported that in more than one instance this price has been shaded. We quote as follows for eash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foun-			
dry	10.75	Œ	<b>\$11.00</b>
Bouthern Coke, No. 2 Foun-			
dry	10,00	Q.	10,25
		-	0.05
dry			9.75
Southern Car Wheel	-16.50	41	17.00

#### Metal Market.

Pig Tin.-Prices in the wholesale market have moved almost steadily downward, particularly on prompt and near future deliveries, the decline being from 0.15¢ to 0.30¢. The deeline on later futures was not in proportion, and in this fact there is circumstantial englesses that the constitutions of the constitution of the constitutions of the constitution cumstantial evidence that the scarcity of spot Tin that was talked of a week ago existed in imagination only, and that manipulation alone has kept prompt and early deliveries at a premium over futures. Distribution has doubtless been liberal, but the records show that importations during the first half of the month amounted to no less than 1360 tons, and it is a reasonable presumption that some increase in atocka in first hands has taken place. fall in spot prices is suggestive in that connection. Shipments from the Straits during the first half of the month amounted to 1300 tons, including 100 tons to the United States, 580 tons 10 London and 625 tons to the Continent, against a total of 1450 tons during the corresponding period last year. Transactions during the week on 'Change and outside are said to have aggregated upward of 1000 tons. The consumptive dem ind has been rather tainer than last week. Prices for small lots of Straits from store remain on a basia of 174¢ ₽ lb.

Copper.—Small lots have been more freely offered, with the effect of weakening prices a trifle, but the market is a very narrow one at present and the significance of the change in values during the week is problematical. The potent fact remains, however, that a large portion of consumers are securing Copper on old contracts at prices much below those now generally asked, and rumor has it that some are quietly taking profits on resales of a part of their stock instead of working it up. For small lots of Lake Ingot, jobbers ask 1014 ? Pilb.

Sheet Copper.—There is a very fair consumptive movement in Sheet and other manufactured Copper, but it shows little beyond the fact that consumers' stocks have become latterly so utterly depleted that they are constrained to fill their immediate requirements. Individual orders are almost entirely for comparatively small quantities, large contracts being still very much the exception. Prices are firm and inquiry good.

Pig Lead.—Orders have been placed for nearly, if not quite, 1000 tons, Oztober and November shipment from the West, at 3 10¢, wholesale price, laid down here or at common point. The greater portion, it is understood, goes to large consumers. The retail demand is modera e and jobbers prices for small quantities range from 3½¢ to 3½¢

Lead Pipe and Sheet.—The demand is moderate in this section and prices are firm and unchanged, at former quotations.

Spelter.—Nothing more than routine business has been effected in this market. The demand continues exceedingly tame, and sellers appear to be weakening. At all events Western brands in large lots have been offered at a shade under former quotations. For small lots of Western from store, 41¢ † lb is about the ruling rate.

Antimony.—Only routine business is passing and the demand is slow. Jobbers' prices for moderate sized parcels remain at about 10½¢ for Cookson's and 9½¢ for Ilaliett's.

Nickel.—There is a wide range of prices. Nothing more than routine business is passing.

Tln Plate.-The stock on hand this week has been cleared up as fast as unloaded from ship, a large proportion going in delivery on previous contracts. Considerable quantities of Plates have been taken out of bonded warehouses also, and, upon the whole, the movement into consumptive channels has been fairly large. In a few lines, for instance, in 20 x 28 Ternes, there is some scarcity and prices are strenger. Otherwise prices exhibit little change from those of last week. The assortment is considerably broken up, apart from these, but large shipments are now on their way and due within a week or ten days, which will relieve the scarcity, at any rate for the moment. Mean-time stocks, while not increasing here, are shrinking rapidly on the other side, and, as the demestic output has been very much restricted by the closing down of most of the American Tin Plate works, the chances are that prices will not exhibit much, if any, shrinkage in the near future, American makers have been revising their quotations, but rates for domes-tic Plates are quite irregular, and have not yet gotten down to anything like a The Tin Plate wage settled basis. question in this country offers as yet no signs of an early solution. Manufacturers are standing out for a reduc-tion of about 25% in the scale, while the workmen say they are unwilling to sceept more than 10 %, and the situation appears to be in the nature of a desdlock. One or two large works have, however, resumed, the proprietors of one of the largest in the country doing so on the understanding that the employers are to get the advantage ultimately of any reduction made by the other works. The demand for high grade Roofing Plates of American make is pretty active. Canners' requirements have all been filled, so that the demand for Coke Tins from that quarter is In November and Decemquiescent. ber the Can makers are went to place their orders for Plates for delivery in January and February. Should the demand from this interest be up to the average in volume, some stiffening in the prices of Cokes may be looked for, the stock of these Plates not being excessive on either side of the Atlantic. Jobbers report an excellent and improving retail business. While individual orders are usually for small amounts, the aggregate volume is larger than it has been for a long time past. It is ex-clusively a spot business that is now being done. Futures are neglected, being done. although inquiry in this direction shows a notable incresse.

The Tin Plate market has been quiet and easy. Transactions at the quarterly meetings were limited to small lots at bottom prices. Sellers refuse to make further concession, but merchants are bearing the market. Sellers are reserved owing to reduction in stocks, but their position is weakened by the fact that several large works are starting up. Swansea quotations are as follows:

Bessemer Cokes, IC	. 10/ @
Chambers Calus IC	. 10/03/09 ****
J. B. Steel Cokes, IC	. 10/ @
Dean Ternes, 20 x 28	. 20/ @
Charcoals, IC	11/ 110.
Charcoals, IC	11/

Large orders for Black Plate have been placed at late prices.

Sheet Iron.—The demand for Sheet Iron is reported to be very heavy, and, with some of the mills idle on account of the Tin Plate wage dispute, the difficulty in getting anything like prompt shipments has increased. Some mills are completely sold up for the next month or so, and most of the leading mills will make no assurances of delivery before the middle of November. Although under these circumstances prices might be expected to advance materially, as a matter of fact they have not yet done so, makers continuing to quote old rates whenever they are open to book an order. The jobbing demand for Galvanized Sheets in this vicinity is referred to as being very heavy. They are quoted at 75 and 5 % to 75 and 10 % off.

The monthly statement of the Bureau

The monthly statement of the Bureau of Statistics gives the following details of exports of Copper during August:

Ore— To United Kingdom	1894. Tons.	1893. Tons. 4,626 505
To Germany		5,131
Ingots, bars and old— To United Kingdom To Germany	Pounds. 4,664,920 2,641,849	Pounds. 3,569,846 2,667,651
To France To other Europe To Br. No. America	2,337,598 4,207,739 35,759	4,254,206 6,692,589 1,250
To Mexico		20,407 3,473
3'o other countries	5,000	

The movement during the first eight months of the respective years was as follows:

Ioliows :	1894.	1893.
Ore-	Tons.	Tons.
To United Kingdom	1,606	27,429
To Germany	1	533
Totals	1,607	27,962
Ingots, bars and old-	Pounds.	Pounds.
To United Kingdom	47,995,426	12,258,808
To Germany	14 348,305	7,338,910
To France	11.514.001	11,154,440
To other Europe	36,842,061	20,020,383
To British North Amer-		007 730
ica	192,113	305,532
To Mexico	133,975	85,507
To West Indies and Ber-	7,481	3,473
muda		33,600
To other countries	6,208	33,000
Totals	111,039,569	55,198,653

### Chicago Report.

Scrap.—The week has been comparatively quiet, following one of large business. Dealers quote the following list of buying prices, Chicago delivery:

Per r	et ton.	Per lb
No. I Wrought Scrap		
Machinery Cast	6.00	
Maileable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars.	3,00	
Sheet Iron and Hoops.	2.00	
Piow Steel and Breaking	4.00	
No. 2, such as Shovels, Hoes, &c.	3.00	••••
Old Boilers-whole (Iron)	3.00	
" (Iron)—cut in single Sheets and Rings	5.00	••••
Tubes	5.00	•••
Cast Borings	3.00	

Turnings	4 00 7.00	
Copper Bottoms	••••	536¢
Copper Clips and Heavy Heavy Brass		51/¢
Light Brass		21/40
Tea LeadZinc		2 6
Rubber		31/4

Authracite.—The better movement continues and prices are firm. Carload lots of 12 net tons or over are quoted as follows:

	Egg, Sto.	
	Grate.	and Ch.
Chicago, Ili	<b>\$</b> 4 75	
Milwaukee, Wis	4 75	5.00
Kansas City, Mo	7.95	
Council Bluffs, lowa	7.95	8.20
Lincoln, Neb	8.10	8.35
Sionx City, Iowa	7.95	8,20
Aberdeen, S. Dak	8.00	8.25
Dubuque, Iowa	6.05	6.30
Madison, Wis	6.25	6,50
St. Paui, Minn	7.25	7.50
Burlington, lowa	6,25	6.50
Des Moines, Iowa	7,70	7.95
Davenport, Iowa	6.05	6.30
St. Joseph, Mo	7.95	8.20
Leavenworth, Kan	7.95	8.20
Omaha, Neb	7.95	8.20
	_	

### Colorado Anthracite.

00201220	
Denver	\$8.00
Pueblo	8.00
Colorado Springs	8,00
Leadville	8.00
	10.00
Cheyenne, Wyo	10.00
All points between Denver and	8.85
Mi 101	0.00

#### CONDITION OF THE

## Hardware Trade.

BUSINESS is moving along without special change from the conditions which have existed the past few weeks. Orders are large in number and carefully assorted, but the aggregate in dollars and cents is not in all cases satisfactory owing to the comparatively small quantities in which purchases are made and also the lower prices which prevail on many goods. The practice of the trade in ordering in much smaller lots than has been usual, even though orders are more frequent, adds not a little to the cost and trouble of doing business, as business of this character often keeps a concern as fully occupied as it would be if orders were for usual quantities. It is also a matter of frequent remark that in order to keep business up to its present standard a good deal of special effort is necessary, and travelers refer to the hard work which they have to do in securing orders. Reports from the retail trade indicate a very general though not very marked improvement in general business conditions. While the trade at the present time does not come up to the more sanguine expectations which were entertained there is a general feeling that business is steadily improving and that a good trade may be anticipated before very long.

Advices from Chicago.—The Shelf Hardware jobbers report a considerably better movement than in September. Some jobbers report that the first two weeks of this month have been with them the best of the year. Quite a number of new ventures are reported, and sales of new stocks are breaking the monotony of continuously entering small orders. The small orders, however, are still a leading feature of the business, and the invoices present a remarkable array of writing and figuring for the small amount footed up at the end. Trade is improving in some sections of the West which were regarded as almost hopeless. Kansas is doing better than had been expected, and other Western States are coming up in much better

shape. Orders are being steadily re-ceived from the silver States and from other mining sections which have so long been depressed. Heavy Hard-ware has had au exceedingly good week. Orders are still small, but they are plentiful. This branch of business has experienced considerable benefit nas experienced considerable benefit recently from the large purchases of lumbermeu's supplies for lumber camps during the coming winter. Carriage manufacturers are still entering contracts for their season's supplies. Wagon builders, however, appear to be doing year, little at years. plies. Wagon builders, however, appear to be doing very little at present. It is expected that their trade will come forward later, and perhaps be better for the present dullness.

#### Notes on Prices.

Wire Nails .- There is little change in the market since last week. There is a good deal of irregularity in the price at which Wire Nails are sold by jobbing houses, some of the prominent ones, in the West especially, selling freely at \$1.10 to \$1.15. The market is not regarded as being in a settled state, and buyers are watching it carefully to see whether or not the manufacturers will succeed in the efforts to which we have before referred to eliminate disturbing influences.

Advices from Chicago. - The condition of business shows little change from that reported last week. quiries are considerably better, but the volume of business can hardly be said to have gained anything. Jobbers are selling small lots from stock at \$1.10, and show no disposition to advance this price, although they will be unable to replenish their stock at the same cost if manufacturers maintain their present attitude. The situation is, therefore, interesting from the standpoint of jobbers.

Cut Nails.—There is a fair but not heavy movement and prices are without material change. Small lots from store in New York are held at \$1.05 to \$1.10 on a 60-cent average.

Advices from Chicago. - Local manucoming in, but only of a character to supply the immediate wants of merchants. Nobody seems disposed to enter contracts for future delivery. Small lots from jobbers' stocks are quoted at

Barb Wire. - There is little doing in Barb Wire and prices are without change, Four-Point Galvanized being quoted as follows, in carload lots, dequoted as follows, in carload lots, delivered at the points named: Pittsburgh, \$2 to \$2.05; Cleveland, \$2.05 to \$2.10; Cincinnati, Allentown, Chicago or New York, \$2.15 to \$2.20. Negotiations between manufacturers with a view to consummating arrangements which have been under consideration for some time still continue, and are understood to be progressing favorably.

Advices from Chicago. - Manufacturers are in receipt of fair orders from a few sections of the West, but generally speaking, trade is quite disappointing. Jobbera are also doing only a light business. Small lots of Galvanized are quoted at \$2.25 from stock, and \$2.15 from factory.

Screen Wire Cloth .- The manufacturers of Screen Wire Cloth have recently determined upon prices for the coming season. They are based on the quotation of \$1.45 per 100 feet for small lots, with concessions for quanti-ties similar to those which were made last aeason, but giving a slightly lower extreme price.

Aluminum Ware.-In addition to their regular list, the Illinois Pure Aluminum Company, Lemont, Ill., have issued the following list of new goods. It is subject to a discount of 15 per cent. :

Berlin Sauce Pans.

No. 1, per dozen, \$13; No. 2, \$15; No. 3, \$18; No. 5, \$22; No. 7, \$26.

Berlin Kettles.

No. 1, per dozen, \$13; No. 2, \$15; No. 3, \$18; No. 5, \$22; No. 7, \$26.

Conver S. Pans.

No. 2, per dozen, \$14; No. 3, \$16; No. \$19.50; No. 6, \$24; No. 8, \$25.

Convex Kettles.

No. 2, per dozen, \$14; No. 3, \$16; No. 4, \$19.50; No. 6, \$24; No. 8, \$28.

Convex Cook Pots

No. 1, per dozen, \$13; No. 2, \$15; No. 3, \$18; No. 5, \$22; No. 7, \$26.

Muffin Covers.

6-inch, per dozen, \$10; 7-inch, \$12; 8-inch, \$17.

1-gallon, per dozen, \$18; ½ gallon, \$13.30; 1-quart, \$8.70; 1-pint, \$5.30; ½-pint, \$3.30.

Bevel Cups.

14-pint, per dozen, \$2.20; 34-pint, \$2.65 1-pint, \$3.20; 11-pint, \$3.60.

1-quart, No. 4, per dozen, \$7.50; 2-quart, No. 5, \$9.50; 4-quart, No. 6, \$12.

Individual Soup Tureen.

1-pint, per dozen, \$13.

Miners' Cups.

1-quart, per dozen, \$6.30; 2-quart, \$9.30.

Fry Pan.

6 inch, per dozen, \$6 50.

Spun Tea Kettles.

4-quart, each, \$3; 5-quart, \$3.25; 6-quart, \$3.59; 7-quart, \$3.75; 8-quart, \$4.

Water Pitchers.

3 pint, per dozen, \$31.50; 4-pint, \$32; 5-pint, \$32.50; 6-pint, \$33; 7-pint, \$53.50; 8 pint, \$34.

Soup Tureen.

112 gallon, each, \$3.75.

Service Stropping Machine .- This article is put on the market by E. Lothar Schmitz, 92 Reade street, New York, for whom Hermann Boker & Co., 101 Duane street, New York, are sgents. A description of it was given in our iesue of October 6. The Stropping Machine is sold to the trade at \$15 per dozen, net.

Sash Weights .- The Sash Weight market is in an unsatisfactory condition and prices are low and very irregular. Some manufacturers advise us that it is necessary to make large concessions from what they consider a fair price in order to secure business and the result is that current prices are unprofitable. There is a wide range of prices quoted by different manufacturers. A fairly representative price is perhapa \$15 per ton, f.o.b. factory, for lots of 1 ton or more, smaller lots being held at \$16. These prices are, however, ahaded, and considerably lower prices are made by some foundrice, the matter of price being determined to some extent by the quality of the goods. The condition of the market is referred to in the following terms by a well-known Eastern manu-

Prices continue at ruinously low prices, or, to be more exact, Sash

Weights are being sold to day at from \$1 to \$3 per ton less than the actual cost of manufacturing. Prospects for the immediate future are not encourag ing. There is still a large stock on hand, which the manufacturers seem anxious to dispose of, and there is also a preity general feeling among manufacturers in all lines that we are only at the beginning of an era of low values, and that the wage scale and prices of raw ma terial will be lowered to conform to the present prices of manufactured goods. Manufacturers must have some relief soon, as the present conditions are simply a butchery of their resources and cannot continue long.

Old Metals.—Business in Old Metals has been quict. The demand for Scrap Iron from buyers in this district is very limited. Prices show no radical change.
The following quotations represent about the rates paid by New York dealers:

| 1.50 @ 8.50 | 1.50 @ 8.50 | 1.50 @ 8.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |

Old Rags, Paper, &c .- The market is irregular, some descriptions of Paper stock being in demand and others very Prices paid by dealers, New York delivery, are quoted as follows:

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

THE ROLLING MILLS of the McCullough Iron Company, North East, Md., were damaged by fire on the 9th ics., caused by an explosion of lamps in the engine room. Two of their three sheet mills escaped injury and are working without The roof over the third interruption. mill was burned and the bar mill was destroyed. The forge and other buildings were not harmed. The loss is amply covered by insurance, and the company will repair the damages at once. There will be no interruption to business. Their other sheet mills, at Wilmington, Del., and Rowlandsville, Md., are running on full time.

# Metal and Miscellaneous Prices.

### CHICAGO, OCTO

	Chicado, Co.	
_	Inondata C. C.	1C, 20 x 28 1X, 20 x 28
Tin-	Irondale Λ Λ : 10', 10 x 14, 12 x 12, 14 x 20, 8	IX, 20 x 28
Straits pigs 18¢	Each extra cross	H. B. L., Old Style IC, 14 x 20
Imported Tin Plates-	Irondale A:	IX, 11 x 20
Charcoal Plates.—Bright.	IC, 10 x 14, 12 x 12, 14 x 20	IX, 11 x 20, 1C, 20 x 28, IX, 20 x 28,
guaranteed Plates command special prices, according to quality.	Each ex(ra cross	130111111111111
Per hox.	1roncale B: 10', 10 x 11, 12 x 12, 14 x 20	Merchant's Tander
[IC, 10 x 14	Each extra cross	Sheet Iron
IC, 12 x 12	Irondale C, RC, 14 x 20	E
IO 20 x 28 4 11.30	Each extra cross	
10, 14 x 20	Roofing Plates.	Nos. 10 to 16
IX, 14 x 20 7.50	abouting I takes.	17 to 20 21 to 24
DC 124 x 17 @ 5,50	Palm, IC, 20 x 28	26 and 26
DX, 125, x 17@ 7.25	mpire, IC, 20 x 28	Parania P
Allaway Grade. (IC, 10 x 14,	Empire, IX, 20 x 28	Russia, P. Genulae Russia, a
Allamar Oroda IC, 14 x 20@ 5.5)	Hickory, IC, 20 x 28	Patent Planished.
IC, 20 x 28@ 11 01	Alaska (heavily conted), IC, 20x28@ 13.50	Craig's Polished S
1X. 20 x 28@ 11.00	Alaska IX, 20 x 28	Gai
Ooke Plates-Bright.	Palm, IC, 20 x 28	Juniata or first qu
Ooke Plates—Bright.	Weatmoreland:	Copper-
### Coke-IO, 10x14.14x20	1C, 14 x 20	Lake
10, 14x20, 100 b	Elwood:	Casting Brands
90 ± 28	1C, 20 x 28	Sheet
J. 10x14, 14x20	Kenwood:	Discount on ole on cold rolled pe
3.V. Brade. IC.10x14, 14x20		25¢), 25%.
Charcoal Plates.—Terne.	Furmston: 10.00	Coppe
prices, according to quality.	Furmston: 10.00 IC. 20 x 28 10.00 Irondale AA, IC, 11 x 20 Irondale AA, IC, 14 x 20 Irondale B, IC, III x 20 Irondale B, IC,	Discount on old
	Irondale A, IC, 11 X 20	Scamless Brass Base price, 1756
IC. 14 x 20	Each extra cross	l according to sixe.
IX. 20 x 28@ 12.50	Juno:	Copper, Bronze
Wercester Brand equal.—  IC. 14 x 20 @ 5.95  IC. 20 x 28 @ 10.50	IC, 14 x 20	Brazed Brass
1C, 20 x 28 @ 10.50	Illinola, Old Method :	(To No.
1C, 20 x 28 @ 10.56 1X, 14 x 20 @ 6.50 20 x 28 @ 13.00	IC, 20 x 28	Discount, 40%.
Tin Boiler Plates.	IC, 20 x 28. E. L.: IC, 20 x 28. Jessle:	Plain, & Inch up
Per box of Per box of	1C, 20 x 28	Plain, & inch up
100 sheets. 112 sheets. <b>X</b> , 14 <b>X</b> 28\$11.75 \$11.25	Jessle:	
<b>XX. 14 x 28</b>	Jessie   IC, 20 x 28.	Plain, & theh up Plain, 3-16 Inch u
X, 14 x 31 13,00 12,50 XX, 14 x 31 15,00 15,00	" IX, 14 x 20	Plain, 16 inch up
Per hox at	1X, 20 x 28	Plain, 14 Inch up Plain, 2 Inch up t Plain, 3 inch and
<b>X. 14 x 56</b> \$16.56	Taylor's Old Style, IC, 14 x 20 (Stamped and Resquared)	i Piain, smailer th
XX. 14 x 66 829.50 18 29	Taylor's Old Style, IC, 20 x 28	Bronze and Copp
X, 14 x 60	(Stamped and Resquared)	Roll and Sheet
	(Stamped and Resquared) Taylor's Old Style, 1C, 20 x 28 (Stamped and Resquared). Taylor's Old Method, 1C, 14 x co LC, 28 x 29 Taylor's Roofing, 1C, 14 x 20 (Stamped and Resquared) Taylor's Roofing, 1C, 20 x 28 (Stamped and Resquared)	Discount, 40%.
American Tin Plates - Charcoal Plates - Bright	Taylor's Roofing, IC, 14 1 20 (Stamped and Resquared)	Slab Spel
Mineryn:	Taylor's Roofing, IC, 20 x 28	1
Mineryn: 1C, 10 x 14, 12 x 12, 14 x 2085,875 IX, 10 x 14, 12 x 14, 11 x 20.6.625	(Stamped and Resquared)	Sheet Zir
IX, 10 x 14, 12 x 14, 11 x 20,6,629	1C, 20 x 28 (Stamped)	300 b casks,
1C, 10 x 14, 12 x 12, 14 x 20,5.874 1X, 10 x 14, 12 x 12, 14 x 20.7.624	Maple, IC, 14 x 20 (Stamped)	Loose sheets
IX, 10 x 14, 12 x 12, 14 x 20.7.025	Willow, IC, 14 x 20	Lead- Soft Pig Lead
10, 10 x 14, 12 x 12, 14 x 20 6.2. 1X, 10 x 14, 12 x 12. 14 x 20 8.0	IC, 20 x 28	Bar
Usual extra for other crosses and $20 \times 2$	Knoxall, IC, 14 x 20	Pipe
		Block Tin Pipe Sheet
Brilliant, Tissue Packed, IC, 14 x 20.  Boyal extra. IC, 14 x 20.  Merion, IC, 14 x 20.  Almond, IC, 14 x 20.  Mint, IC, 14 x 20.	. IC, 20 x 28	Solder-
Merton, IC, 14 x 20	1C, 20 x 28	Solder-
Almond, IC, 14 x 20	" 1X, 20 x 28	Extra Wiping
Mint, IO, 14 x 20	Cld Dronger:	
Coke Plates.—Bright.	Old Process: 8.56 1C, 14 x 20. 8.50 1X, 14 x 20. 10.00	
Coke Plates.—Bright. Elwood.—IC, 14 x 20	1X, 14 x 20	) i tion.

O	BER 18,		94.	
	IC, 20 x 28. IX, 20 x 28. H. B. L., Ohl Style: IC, 11 x 20. IX, 11 x 20. IX, 12 x 28. IX, 20 x 28. Werehant's Tanden. Sheet Iron—		11 00	111111
	Bla	ommo	n Refined	I
00 25 35	Nos. 10 to 16	b 2 1-10 b 2 2 1- b 2 3-10 b 2 3-10	04 2 7-104 04 2 8-104 04 2 0-10#	
50 10 50	27	umber F b A, l	#18¢ net. 10%¢; B, 9%¢ dis. 6%	)
70 50 50	Craig's Polished Shee Galvar Juniata or first qual	t steel. ized. ity	die.75@5≸	4
5	Copper-	•		1
50	I take		1016# @ 11 # 1186# @ 1016#	١.
	Sheet an	d Bolt		
50	(25¢), 25%.	st (exc bed be	ept advance dier sizes to	
00	Copper	3ottom	8.	ŀ
::	Scamless Brass ar	d Cor	per Tubes.	ļ
• •	Base price, 1716, C	hicago,	With extras	
	Copper Discount on old lis Scamless Brass an Base price, 1746. C according to size. Copper, Bronze and B additional. Brazed Brass Tut	i Olidie iing.  (	ng Tube, 3# ₹ 100 to lots.)	
	To No. 19	inclusi	ve.)	l
	Discount, 40%, Plain, 3, Inch up to 2 Plain, 3, Inch up to 2 Plain, 4, Inch up to 3 Plain, 4, Inch up to 4 Plain, 5, 18 Inch up to 1 Plain, 5, 18 Inch up to 1 Plain, 3, 16 Inch up to 1 Plain, 4, Inch up to 1 Plain, 4, Inch up to 1 Plain, 2 Inch up to 3 Plain, 3 Inch up to 3 Plain, 5 Inch up to 5 Inch up	inch . ( inch . ( inch . ( inch .	\$0.35 * .33 .38 .41	
	Plain, & Inch up to	-16 incl	1	1
	Plain, 3-10 then up to	16 inc	h 1.50	
	Plain, 2 inch up to a Plain, 3 inch and lar Plain, smaller than Bronze and Copper	ger 8 inch	Special Special 3¢ advance	
	.   Mill mun pucce ry	raus.	(160 D lots.)	1
	Discount, 40%.			١
	Slab Spelte Western Spelter		40	
	Sheet Zinc	 	81.75	5
	. S00 b casks,		5.00	5
	· laad-			
	* ) Soft Pig Lead			6
	Bar		E1/4 dia 10	a.
	Pipe Block Tin Pipe Sheet		6¢, dia. 10	8
• • • •	Caldar			
	Extra Wining		1156@12	¢
	The prices of the of Solder in the ma	many	other qualitie	8
	of Solder in the ma	rket iu ecordii	dicated by pr	1

	Antimony-
\$17,00 20,00 yle: 7,00	Cookson
yle:	Hallett's10#
	***
8.25	Wrought-Iron Pipe-
7.00 8.25 11.00 11.50 ous Roofing Tin	it and under, Plain
16,50	154 and under, Plain
ous Roofing Tin.	15 and under Galv
demper roll, 2.75	14 and over, Plain
acmi, minimum zami anni	11/4 and over, Galv
on-	Holler Tubes, list Oct. 24, 189270&10\$
Disale	Casing, list Nov. 16, 1892
Black.	Inserted Joints Casing, list Nov. 16.
Common	1892 47345
American Refined.  ** ** ** ** ** ** ** ** ** ** ** ** **	Steel Boller Tubes 9724
* % 2 1-100 2 7-100	Cold Drawn Saamless Steel Tubing 105
р в 2 2 100 2 8-100 [	COM DIAWH SCHILLESS SECT LUDIUS
	Cast-Iron Soll Pipe-
3 10 2 4-10# 3 # I	Cost I Call Dive Marrada street 9 to 6
To b 2 5-10¢ 3 1-10¢ 1	Cast-fron Soil-ripe, tarred; sizes 2 to 8
Dlanished de	inches, inclusive
-11 numbers 184 net	Cast-Iron Soil-Pipe, Tarred; sizes 2 to 8 inches, inclusive
, all numbers D 01/4	
ed w to A. 10 ster, D. 10 ster.	Leader Pipes-
018.0%	
	Abendroid's Gaiv. Spiral Riveted
alvanized. qualitydia.75@5\$	Gordon & Cilhartis Corrugated 065
qualitydia.75@5%	Dischara (Only Iron only Corld 054
quanty	Ritchie's (Osiv. frod only) Cord 058
i	Ritchie's Spiral Lock Seam, Gala'd 605
Ingot	Austin's Spiral Ribbed Pipe 65%
101/4/211 4	James A. Miller Bros. (Oalv'd Iron
**************************************	only) Corrugated
Ingot. 1044 @ 11 #	
et and Bolt.	Elbaws-
at the towaget piluance	Adjustable
old list (except advance polished botler sizes to	Adjustable
polished botter sizes to	Spiralbox
	Furnace Fittings-
per Bottoms.	Furnace Fittings
THE BOLUTIES	Discount from Excelsior Steel Fur-
ld 1181, 25%.	Discount from Excelsior Steel Furnace Co.'s list
ss and Copper Tubes.	
mer Hottoms.  old list, 25%.  ss and Copper Tubes.  14¢, Chicago, with extras	Steel Roofing-
ie	Postootion \$3.25 admare
ze and Oilding Tube, 3#	Perioculon \$3.00 agrana
the first and on the same	Perfection
material (100 % lota)	The Lioyd Spanish Thing 31.50 square
s Tubing. (100 lb lots.)	Metaille Shingles-
lo, 19 inclusive.)	TOTO CATTLE OF THE ST AND
	Cushman's
p to 2 Inch\$0.35 1: 10 84 Inch 33 p to 58 Inch 38	Merchant & Co. a Spanish Tiles;
ii to % Inch	Copper, 14 OB \$36.00 square
in to 56 Inch	Tin
n to 12 buch 41	Steel, painted
our to 3s Inch .48	
to the training in the first	Drain Pipe-Tile.
th to actomicity account ago.	Diam ripe
	1
i up to 34 Inch 1.00	Discount from list70\$
1 up to 34 inch 1.00 1p to 3-16 inch 1.50	Discount from list70\$
r up to 34 Inch 1.00 ip to 3-16 Inch 1.50 p to 3 Inch	Discount from list705
r up to 34 inch	Discount from list705
r up to 34 inch	Discount from list705
r up to ¼ inch	Discount from list705
rup to 4 inch	Discount from list70\$
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### NEW YORK, OCTOBER 19, 1894.

The following quotations are for small lots.

1	
Aluminum-	
No. 1 Aluminum (guaranteed over 98%	ĺ
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List April 9, 1894.	
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84 % n more than brass.	

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	Strainers, Conductor.	
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K	No. 1., 80.70, 77, 82, 87, 1.95 per doz.	ı
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Conductors-

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Corrugated.	١
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Round or Square.  Tin	
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American Pig	*

	Tin Lined Pipe
ļ	Metal, Expanded-
	Manufacturers' list No. 8.  Lathing 9.  Fencing, Painted Sheets 905  Netting, Painted Sheets 905  Door Mata, Galvanized 95  Window Guarda, Paneled 185  Tree Guarda, Paneled 185
	Mitres, Eave-Trough—800 Eave-Trough Mitres.
	Paints, Oils &c
,	Lead, Amn. White, in oil
	Putty: In barrels and % bbls
on.	Boofing Material, &c.:   Asphaltum, Trinidad Refined, #     ton.
4	

# THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, October 27, 1894.

DAVID WILLIAMS. -

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PUBLISHER

NEW YORK. 96-102 Reade Street.

PHILADELPHIA 220 South Fourth Street.

BOSTON 146 Franklin Street.

PITTSBURGH Room 509 Hamilton Building.

CHICAGO. 69 Dearborn Street, cor. Randolph.

CINCINNATI Rooms 22-24 Pickering Building.

ST. LOUIS Bank of Commerce Building.

CLEVELAND 312 The Cuyahoga.

BUSINESS OFFICES:

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

#### Young Men Without Capital.

The first of the year is approaching, and at that time many business opportunities will be presented. Some men will want to sell out their interests, others who have a good business and good prospects will need more capital and assistance. There is no place so natural to look for the assistance as among the young men in the same line of business. Many of these young men fill positions requiring business acumen and capacity. They are ambitions to get along, and feel that they have been misnsed if some other young man of less reputation for ability is given an opportunity to take an interest instead of them. A man who wants to sell out is often asked, Why don't you give your man a chance? or, Why don't you sell to your employees? Then a look of disappointment comes over his face, for he knows they have never had enough business capacity to "live at a profit," and that any business to be successful must be done at a profit. His men have never saved a dollar, though they are excellent salesmen, bookkeepers, workmen, foremen and superintendents. So he must sell to a stranger what they have helped to build up. Some men have tried the formation of a stock company, keeping a controlling interest, and found that their employees could not buy even a small amount of stock without horrowing. Such stock companies have often failed of success, and the old merchant has been forced to reassume control to save a loss, because men who have never lived at a profit lack the characteristics to do business at a profit. The young man who resolves that inside of another twelve months he shall have saved \$100, will have acquired a trait of character and a kind of information of so much value that, if he had to lose either, he would throw the dollars away. The mere possession of so small a snm does not count for much,

but the ability to accumulate it will develop into the ability to get more and is the stepping stone to competency.

The Habit of Saving.

The habit of saving brings an idea of the values of all sorts of business opportunities and a ready decision from a common sense standpoint that makes a good business man. It reduces the tendency to extravagance and speculation and increases the vigilance to let no opportunity escape and to be industrious and on the lookout continually. A young man who is saving learns that he can save so much this week. and that means so much in four weeks or a month. The successful business man carefully arranges for his regular trade and as carefully plans for the future, weighing all the possible and probable conditions. The principles guiding both men are similar and that is why the young man who has saved money is preferred, for he not only has the small capital needed but has what is far more desirable—the business training that is invaluable. The business year always has an ending and at the ending there are always some who want to sell out or get more capital, and the young man who resolutely denies himself the luxuries that attend the expenditure of his entire salary and provides a saving fund as a part of his necessities will be in a position to take advantage of these opportunities.

#### Confidence.

We have heard a great deal during the past year about loss of confidence in financial circles. We are told that everything has gone wrong because of this loss, and this we may well believe. But do we in turn appreciate how disastrous it is to any business for employer and employee to lose confidence in each other? It may be in some cases that such confidence has never existed and that harmony of action and sympathy between the two has never been possible. It is this lack of confidence that is at the bottom of all troubles. The capitalist will not trust the workman, and in turn the employee doubts the words of his employer. Most assuredly, however, the blame is not all npon one side. Upon the purchaser of labor there rests a great responsibility. but the workman who shall read these lines may also well take them to himself and ask to what extent the golden rule has controlled him in his conduct toward the one to whom he sells his labor. If he had tried harder to do by his neighbor in quality and quantity of work, in words spoken and thoughts unspoken, just what he sincerely desired that his employer should do by him, would his lot seem as pitiful,

would be not see two sides to the question, and would there not be a far better opportunity for the adjustment of all difficulties: Certainly confidence begets confidence, and very few are the natures that are not ultimately affected thereby. Evidence is not lacking that the employer who is implicitly trusted by those whom he employs receives from them better service, avoids many a subject of controversy and withal secures hearty co-operation in all that he undertakes.

#### Prison Labor.

A good deal of attention at the present time is being directed to the question of the employment of prison labor in the manufacture of goods which enter into competition with those made by free labor. The injurious effects of this practice are pointed out, as prison labor is furnished at a price which is exceedingly low and in many cases may be termed nominal, and the result is that manufacturers are compelled to reduce their wages in a corresponding manner, or, when this cannot be done, to abandon the manufacture of such goods altogether. There has thus been caused a great deal of injury both to the manufacturer and to the workman.

To prevent this condition of things some of the States have laws which prevent the employment of prison labor in competition with free labor, and others in one way or another have legislated, or are considering legislation, to minimize the evil as much as possible. Thus, for example, in the States of Ohio, Massachusetts, New York and others it is provided by law that the number of inmates in all of the penal institutions of the State employed at anyone branch of labor shall not exceed 5 per c-nt. of the total number of persons in the same State employed in the same kind of labor. The matter has recently been carefully considered in the Constitutional Convention of the State of New York, and among the proposed amendments of the Constitution is one which bears directly upon this problem:

The legislature shall by law provide for the occupation and employment of prisoners sentenced to the several State prisons, penitentiaries, jails and reformatories in the State, and on and after January 1, in the year 1897, no person in such prisons, penitentiaries, jails or reformatories shall be required or allowed to work while under sentence thereto at any trade, industry or occupation wherein or whereby his work or the product or profit of his work shall be farmed out, contracted, given or sold to any person, firm, association or corporation.

This section shall not be construed to prevent the legislature from providing that convicts may work for, and that the products of their labor may be disposed of to the State or any political division thereof, or for or to any public institution owned or managed and controlled by the State, or any political division thereof.

The above proposed amendment recognizes, it will be seen, the desirability, or necessity almost, of giving employment to the prisoners and attempts to leave room for work which will occupy their time and keep them from the evil effects of absolute idleness, while at the same time guarding manufacturing interests from the demoralization and injury which would be caused if the products of prison labor were put on the market.

As discussing this question in a practical and forcible way and illustrating the effects of competition with prison made goods, the following letter from the Stuart-Peterson Company, Burlington, N. J., manufacturers of Hollow Ware, will be of interest:

Our goods are made in prisons at Auburn, N. Y., Baltimore, Md., Columbus, Ohio, and Jeffersonville, Ind. We understand that Sing Sing, N. Y., will soon engage in a new line also. In regard to the effects of the same we will state that one hollow ware company in Philadelphia has gone out of existence on account of the prison octopus, and that we left Philadelphia in order, under reduced expenses, to cope with this great evil. No better evidence of the terrible effects of this conspiracy to wrest the bread and butter from the mouths of the families of honest labor can be found than that in a letter we have received from a Savannah, Ga., company, in which they refused to pay our bill because we charged them a reasonable per cent. over wages paid free labor, but which made the goods nearly double that of prison labor. This means we must either force our men from between \$2 and \$3 per day down to 40 cents in order to compete or quit the line. We cannot do the latter, pay forty cents, and thus must add one more item to the long list of goods we have ceased

to make because we cannot compete.

Another article this year has been forced down to such an extent that to compete we must lay \$1 worth down in New York for 79 cents. It is not the tariff-with all off we would still be under English prices—but it is the State farming out prison labor at 40 cents per day, and furnishing the plant, and asking us to pay taxes virtually to shut our own doors. Honest men go hungry that the politician con tractor may wax fat, and if you were to scratch the back of some men in high places we know of, you would find prison deal "under the skin. We can cite the case of a very large concern with all of the modern appliances, but who, despairing of competing with prison labor, now buy their goods of the prisons, block them over to change appearances, and sell them as their own make, thus wresting the work from their own workmen and adding prosperity to the prison contractor. How long this will continue, or how long the wheels of toil outside the prisons will continue to turn we cannot say. The Repubto turn, we cannot say. The Republican party promises protection to its voters, but in the direct need it forgets the prison and its baneful influence on honest labor. The Democratic party promises emancipation from the con-vict system, but aside from a feeble attempt at righting the wrong, the procession moves on as of old.

The laboring man strikes for higher

The laboring man strikes for higher wages from employers (already burdened with non-dividend paying plants), but forgets to help said em-

ployer at the polls by forcing this issue and thus securing higher wages by bettering his condition. In proof of this Hon. John O'Neill of Missouri, author of the pending bill in Congress to regulate prison labor, says: "It is a crying shame that the protests come from the manufacturing interests, not the laboring classes. The latter admit the evil, know that their families suffer, yet seem to feel that their influence is too small to have any effect. Thus what is everybody's business is nobody's, and the evil goes on apace."

#### SCRAP.

PRESIDENT MCMURTRY of the Apollo Iron & Steel Company, Apollo, Ind., has returned from a trip to Europe, in the course of which he visited many of the leading Welsh tin plate works, with the view of studying their methods.

A CORRESPONDENT of the Cincinnati Commercial Gazette, writing from Elwood, Ind., says: From present indications Elwood will soon have another tin plate factory, which is to be a four-mill plant. It is being organized by a leading stockholder of the American Tin Plate plant, who wants to enter the business on a larger scale than at present, and it will be a joint stock company, composed of local capital. It will have a capacity of 2500 boxes per week and employ 250 men. This will make the tin plate output of Elwood factories 8500 boxes per week as soon as the American plant gets to running at full capacity and will give employment to nearly 1000 men in this industry.

Nine new tinning stacks were put in operation last week at the works of the American Tin Plate Company, Elwood, Ind., and the establishment is now reported to be in full work in all departments. The men are paid at the old scale of wages, with the understanding that the company will get the advantage of any reduction that is eventually made by the other tin plate works.

WORK has been commenced on the buildings for the newly organized National Tin Plate Company, at North Anderson, Ind. The main building will be 480 x 87 feet in area. Contracts have been let for the necessary machinery for the rolling mill and tinning departments. The new plant will, it is said, provide employment for 700 men.

THE BEAVER TIN PLATE COMPANY, New Lisbon, Ohio, were incorporated on October 17, with a capital stock of \$200,000. The directors named are James C. Dent, W. J. Howell, B. M. Caldwell, J. A. Topping and William T. Graham.

A DISPATCH from Belle Isle, Va., states that a project is on feet to establish a tin plate works at that place.

PHILLIPS TIN PLATE COMPANY, Philadelphia, advise us that their works are at present running full, with five sets, on orders in hand.

A Washington dispatch at that Secretary Carlisle has informed customs officials that it is deemed desirable to continue the collection of correct statistics of the importation of tin and terne plates into the United Sta'es. Collectors are therefore instructed to require importers of such plates to specify and separate on their entries of tin and terne plates such as are lighter in weight than 63 pounds per 100 square feet, and such as weigh 63 pounds per 100 square feet and over.

MACKINTOSH, HEMPHILL & Co., Pitts burgh, Pa., have decided to engage in the manufacture of tin and terne plate on an extensive scale. As yet the plans for the new venture have not all been worked out but will be in a short time. The concern will not erect a bar mill, but will buy their sheet bars in the open market. It is proposed by them to erect a model plant in every respect. The engines for driving the mills will be especially heavy and driving will be done direct. In this connection we desire to state that the report that this firm would abandon the manufacture of ateel castings is without foundation. The firm will continue in this line as herectofore and have never contemplated giving it up.

THE APOLLO IRON & STEEL COMPANY of Pittsburgh, with works at Apollo, Pa., and manufacturers of galvanized iron and steel sheets and the and terne plate, deny the report that they contemp'ate the erection of a number of additional tin plate mills.

It is now some time since the daily papers quit making fools of themselves in confounding the terms tin and tin plate. The educational effect of the tariff discussion and the actual establishment of tin plate works in this country have not, however, permeated all the editorial recesses, as is evidenced by an article in a prominent New York daily of recent date, from which we extract the following entertaining sentences: "Putting tin on the free list reduces the mechanic's wages, if it does not put him out of work altogether.

. . There are now waiting in Liverpool and Cardiff for transportation to this country after October 1, when the new tariff, so far as it affects tin plate, goes into operation, 5000 tons of the product of Welsh mines."

Comptroller of the Currency James Eckels, who a few days ago addressed the Bankers' Club of Chicago, took s very hopeful view of the financial situation throughout the country. Hestated that the recent marked revival of business was by no means confined to the great financial centers. The last call for a statement from the national banks, made on October 2, showed an increase in reserve cities since July 18 of \$38,-000,000 of loans and discounts. estimated that, in addition to this, there was an increase of \$20,000,000 in outside cities. It was not confined to the financial centers but seemed to come from every section of the country, indicating a very general and healthy re-vival. Compared with the atatement of one year ago, however, the increase is phenomenal-more than \$150,000,-000. All this indicates a restoration of public confidence and more liberal investments.

In his annual report, Commodore George W. Melville, Chief of the Naval Bureau of Steam Engineering, makes the following pregnant statement in regard to the cruisers of the "new navy:" "In the 'Minneapolis,' the 'Columbia,' the 'Olympia' and the 'New York' we have produced," he says, "a quartet of cruisers which in point of speed are unequaled by a like number of ships of any navy in the world. Their trisls were more exhaustive and the result such as to leave absolutely no doubt as to the real speed. Subsequent examination of the machinery failed to disclose any weakness or defect of any nature whatever."

#### Iron Pipe Coupled to Lead.

We illustrate herewith the system used by the Star Coupler Company, St. Louis, Mo., in connecting the gas grates in the New Planters' House in St. Loui.

even, steady illumination. A number of mill men who have examined this room are of the opinion that it would not be light enough for weaving, although suitable for braiding, and others doubted its adaptability to a room containing many belts and col-

Iron Pipe Coupled to Lead.

It will be noticed that two couplers only are used, which, in conjunction with a piece of light lead pipe, an iron nipple and street ells, complete the connection. The point is made that by this system a great saving of time is accomplished. In this contract there were 104 grates connected, which work was done by two men in four days. The company state that if all iron pipe had been used as has been the custom heretofore, the work would not have been accomplished with two men in less than 14 to 15 days.

#### A Novel Method of Illumination.

Some months ago an English manufacturer made a number of experimenta to determine the best method of illuminating his cloth mills. According to an exchange, gas jets, incandescent lamps and arc lights were all tried and found wanting, because they either failed to give light enough, gave too much light or cast heavy shadows. Finally, a Continental idea was adopted. The walls of a room were painted white, and under each of a number of arc lights was suspended a reflector which threw all the light up to the white ceiling, from which it was reflected to the room below. This system was successful from the outset and has attracted considerable attention among English weavers. It was examined by Darius L. Goff, of the Goff braid mill in Pawtucket, and he has adopted it to light a braiding room 50 feet wide and 200 feet long, only seven arc lights being used for the pur pose. The room is admirably adapted for auch a system of illumination, as there are no columns in it and but a few belts near one wall. On entering it there seems to be an absence of proper light, but in a few minutes the feeling of dusk disappears in the unusually umns. Mr. Goff is to give it a practical trial in such a room, however, which will settle the question definitely.

#### Fire King Gas Grate.

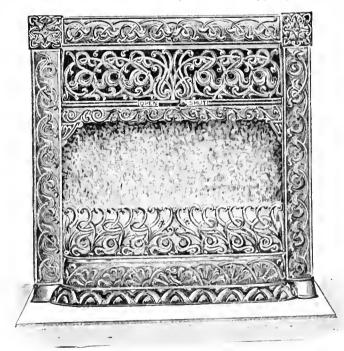
Among the goods which A. Weis-kittel & Son, Bultimore, Md., have

refer to the design, finish and heating capacity of the device, and state that the burner used is something new in that line. It is so made as to produce when in operation a solid wall of fire at the back of the grate. A combination cock is used, enabling the householder to adjust it to suit any kind of gas.

Another feature referred to is the damper, which is easily operated from the outside, and can be set to carry off the products of combustion without permitting an undue escape of heat to the chimney. It is well known that in the consumption of some gases more ventilation is required than with others, and the claim is made that this damper enables the operator to give the grate proper ventilation. It will be seen from an inspection of the engraving that no maker's name appears in sight to mar the beauty of the design, but It is placed in such a position that it can be readily found when desired. The manufacturers refer to the construction of these grates as being such that they heat by reflection, radiation and circu-They are made in various styles of finish, such as chony, oxidized, bright brass, &c. A catalogue of Fire King gas stoves has just been issued by the company.

A process for coating aluminum with other metals, the discovery of Herr Neesen, is thus described: The aluminum is cleaned by plunging it in a bath of hydrochloric acid or of caustle soda. It is then immersed in a solution of bichloride of mercury, which decomposes and amalgamates the surface of the aluminum, which is then plunged into the first bath again. After that it is sufficient to put the aluminum in a solution of a salt of the metal, gold silver, &c., of which the coating is required. The layer is adherent and the metal can be soldered by the methods ordinarily employed.

The first shipment of copper from the large new copper plant at Salt Lake



Fire King Gas Grate,

lately added to their extensive assortment of gas burning appliances is a grate which is made under the name Fire King, and illustrated in the accompanying engraving. The manufacturers

City, Utah, was made last week. It consisted of two carloads of 61,832 pounds' weight, one car of which went to a Chicago manufactory and the other to Pittsburgh.

# THE LETTER BOX.

#### Durable Galvanized Iron.

From G. C., Dorer, N. J.-1 inclose a sample of galvanized iron, about 24 gauge, cut from the bottom of a tauk lining that has been in constant use since 1871. This sample is not the best or the worst part of the bottom, but is about the average of the whole lot. The tank began to leak October 16 and since that time I have replaced the iron with 16 oz. copper, but I doubt if the new bottom lasts as long as the old one did, for I find that the lifetime of copper in our town is from 10 to 15 years. I took the copper lining out of a tank a short time ago that had not been over 11 years in use, and it was perforated in many places. In this case and in the case of the galvanized iron tank, the water was collected from the roof and raised to the tank by a pump. I would like to ask the question if one quarter of a century is not a good lifetime for sheet iron under water, for the tank has not been known to be empty during that whole time? It supplies the house with hot water and the fixtures in the bathroom, so you see it had to be kept full continually. There are some parts of this iron on the outside face (next to the wood) that are as bright as the day the iron was put on. Furthermore, the metal seems to be very tough, for in taking it out it had to be cut with a chisel, while very often old iron will tear, but it would not in this case. I have made vessels from the iron manufactured at the present time that would rust out after short use. The sample I send seems to be far better than the iron of the present day, and I send the sample with this account of it, as I think it will interest the craft.

Note. — The sample our correspondent sends us fully bears out the account he has given. Iron that has been used for nearly 25 years cannot be expected to have the bright, fresh look of a sheet just from the mill, but is, however, in an excellent state of preservation and is merely dulled as if from weathering, while the inside shows very little trace of rust.

#### Front Wall Trap Regulations.

From J. J. R., Brooklyn.—Will The Metal Worker please state whether the plumbing regulations of New York City require a trap at the front wall and a fresh air inlet to the plumbing systems of all new buildings? In altering the work in an old building, does the same rule apply? Are the lectures on steam and hot water heating at the New York Trade School published in book form; if so, what is the price?

Answer.—A front wall trap and a fresh air inlet are required by the plumbing laws of New York City, and the same laws that apply to New York apply to old work or alterations. Some discussion on the use of front wall traps will be found in The Metal Worker

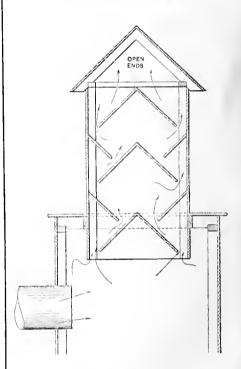
of June 2 and 9. The first regular course in steam and hot water heating given by the New York Trade School will begin January 2, 1895; consequently the lectures are yet to be given and have never been printed. The instruction given at this school in other classes ineluded printed question sheets, on which there is space for the pupil to write the answer. The lecturer writes the answers on a blackboard and the pupils copy them on the question sheets. This gives a writing lesson, and then each question and answer is explained at greater length by the lecturer, whose remarks are guided partly by the questions asked and his experience, and are not in the form of a speeially prepared lecture. None of the lectures have been printed in book form, as it is deemed that the pupil re ceives greater benefit from the present method of imparting information.

#### Dust Collector.

From N. & K., Wisconsin.—As we always find the Letter Box very profitable, and as our brothers in the craft are called upon to take a hand at almost everything, we thought we might get some help by submitting to you our difficulty. We are about to put in a fan in a planing mill to take away the shavings, sawdust, &c. We think we understand about attaching to the different machines, but we are at a loss how to make a proper receiver for the shavings, &c. We have seen them advertised, but for what we have to do we imagine we could construct something to fill the bill for us to cost but a trifle in comparison with the cost of the manufactured articles.

Answer. - A dust arrester or collector is certainly a necessity with any satisfactory system of removing shavings and sawdust from wood working machinery by the use of a fan. The common form of the sheet iron dust collector acts upon the centrifugal principle, the air laden with the refuse material entering longitudinally near the base of an inverted conical receptacle. By a proper arrangement of guides and deflectors within, the air, freed from dust, is permitted to escape at the top while the deposited shavings and sawdust pass down and out through a pipe connecting with the apex of the cone. This type of collector is, however, so extensively covered by patents that we can neither advise our correspondents to make one on their own responsibility nor can we furnish drawings which we could guarantee as embodying no infringements. Therafore, if a collector of this kind is desired

our correspondents will have to apply to the manufacturers. It is possible, however, by providing a settling chamber of sufficient size with a suitably arranged outlet therefrom, to secure fairly good results in the attempt to prevent the refuse from being blown into the open atmosphere. Such an arrangement is shown in the accompanying sketch. The discharge plpe from the fan should just enter the chamber at one side so that the material may be well scattered therein. The increased area of this chamber causes such a reduction in the air velocity that it no



A Dust Collector.

longer has power to prevent the particles from falling to the bottom. For the best results this chamber should have an area, in plan, not less than 15 to 20 times that of the pipe. Escape for this air is provided through the ventilator above. The baille boards serve to prevent, so far as possible, the direct discharge of any auspended material to the outer air. The full outlet area through this ventilator should be at least twice that of the discharge plpe from the fan. So far as we know there is no patent upon this device. Of course, the bottom of the chamber must be so constructed or arranged that the material deposited there may be easily removed. It is also evident that such a device can be easily made up of galvanized iron, although here shown as of wood construction.

## The Principles of Furnace Heating.

From W. R, Philadelphia. — The hints given to "C. F." in reference to an unsatisfactory furnace in The Metal Worker, October 20, are very good. He may be still further helped by having some of the principles that govern the movement of air pointed out. When there is no wind to move air its motion is due to the difference in its weight at different temperatures. Cold air is heavier than the same quantity of warm air and will sink, forcing the warm air to rise, creating a motion that will continue as long as there is a difference in weight. In order to show how little power exists to bring about this move ment the weight of air at 22° and at 230° is compared. These temperatures are selected as temperatures likely to be found at the entrance of the cold air duct and at the register face. The weight of a cubic foot of air at 22° is about eight one hundredths (0.08) of a pound, and at 230° a little less than six one hundredths (0 06) of a pound. From this it will be seen that there is a difference of but about two one-hundredths (0.02) of a pound in the weight of a cubic foot of the air that enters and flows from the furnace. From this slight difference is the force that must overcome all of the obstacles to a rapid movement, such as friction of the passages and turns in supply duct, irregular course through the furnace, turns from furnace to hot air pipes, turns to flues, restricted or badly shaped flues and the obstruction of the register face. It also has to overcome a pressure when the heating pipe runs toward the prevailing wind, or a suction when the wind blows away from the entrance to the supply duct. This the entrance to the supply duct. is the only force to drive the air out of a room already full of air to make room for a new supply of warmer air. The resistance met is by no means small when there is no fire place or ventilating ducts and leaks around doors and windows afford the only escape. With so little power it is wonderful that some furnaces work at all, and shows plainly that in successful work nature must be assisted without consideration of first cost, if the final cost is to be the minimum. In considering the bulk of air, the volume at 32° is used for a basis and put at 1.000, and the same air at 22° has a volume of 0.980; at 230° it has a volume of 1.407, and to double its bulk or volume the air would have to be heated from 22° to nearly 550°. In "C. F's" plant the cold air duct has an area of 240 square inches and the combined area of the heating pipes is about 360 square inches. Assuming the air entered at 22°, it would have to expand in volume one half to fill all of the pipes, and if heated to 230° it would not quite do so.

Assuming that this deficiency is the only hindrance to the heating, it is natural that the pipes leading to the hall and upper rooms would be fully supplied if the other pipes were not. If the air supply is insufficient, the flow of air through the pipes to the lower rooms is apt to be spasmodic, sometimes a good flow of air to a room and again no flow. This condition may be transferred from one pipe to snother without apparent cause or by the opening of a door or a sudden movement of persons in a room. Furnaces have been known to take the air from one room to another where the air supply was not sufficient. In any careful calculation on heating, the velocity with which air moves at different temperatures and the

friction inust be taken into consideration, also the cooling effect of the building to be heated or its capacity to retain heat. Enough, however, has been given to show the importance of doing furnace work with the head as well as with the hands.

#### Eels in Corporation Taps.

From G. F. S., Washington, D. C .-I read with interest the article on "An Eel in the Corporation Tap" in The Metal Worker, October 13, and give an experience of a similar kind here. of the taps used here are screwed into the mains by a patented process. We have to take eels out of the pipes here so often that little thought is given to the matter, but it happened so frequently at a warchouse near my place and caused the owner so much expense that he thought he would try a saving experiment which proved costly. He had an "all around" workman in his employ who offered to remove the obstruction once when the water supply was stopped. He opened the street and uncoupled the tap connection and found an eel in the tap and fussing and pulling at the eel the tap came out. As it was in a 12-inch main carrying a pressure of 60 pounds he was unable to get the tap in again. The water shot up higher than a telegraph pole near by and the water department refused to shut off the water on the main. The superintendent remarked that it served them right; they should have bired a plumber. I was sent for and went to work, laying a door across the ditch, having men to hold it down until the ditch was full of water. Then I got a wooden pole and sharpened the end till it was tapering and about the size of the hole. I stood on the door and felt around with the pole until I found the hole in the main, then drove the point of the pole in tight for a plug. After this I dipped the water out of the ditch till I could work on the main. Then carefully and by degrees I cut off the pole till I could drive the short piece of it that remained into the main with the tap which was then screwed in tight and the connection made.

#### Protection Against Rust.

From a Subscriber.—Can you give a good formula for a dressing for planished iron as a proof against rust? Some of our stoves, made up in early spring, notwithstanding they were well wrapped in paper, show rust spots, and of course are considered damaged by our customers. Any information leading to a good dressing will be thankfully received.

Note. - This is an opportunity for our readers to give the recipcs for the protectives they use. A protective that has been used with satisfaction by a large manufacturer of sheet Iron stoves is made by dissolving good beeswax in benzine or turpentine, so that when applicd with a soft brush a thin film will cover the surface. When it dries it will protect the iron from moisture, and so prevent rust. It does not interfere with blacking, and no wrapping of the stove with paper is necessary. The mixture should be kept in a covered can to prevent evaporation, but if it should become too thick it can be readily thinned.

#### Tar on Tin Roofs.

From W. N., New York, -I note in the issue of the The Metal Worker of October 20, 1894, the criticism of the use of tar for repairing tin roofs on account of its injurious effects on tin plates. Although not an advocate of tar rooting, I believe tar is of great value in closing up troublesome leaks in tin roofs, and experience has shown it to injure the tin very little. I have in mind a standing seam roof of which some of the standing seams were in a leaky condition, and after repeated tria's with thick paint and paint skins, tar was used over the seams and kept them tight without any further trouble. I also have in mind five flat pitched tln roofs, which it was impossible to get water tight and on which the use of paint skins and solder was but a loss of time and money, but where by coating the entire roofs with tar the leaks were stopped and no trouble since, and that is about five years ago. I would sooner favor the ripping off of a leaky tin roof and replacing it with tin or slate; but when the owner of a huilding desires it repaired we use as a last resort, when solder or paint skins fail, a coating of tar, which gives good results.

From J. E., Brooklyn, N. Y.—In The Metal Worker of October 20, two of your correspondents claim that tar is injurious to tin and will not last any length of time. I do not know what chemicals are in tar, but I do know that I have put on tin flashings on flat roofs, the flat portion as well as the flashings being covered with tar, and I have had no trouble with the tin corroding. This work was done over six years ago.

#### Labor in France.

The recently published report to the State Department of Stephen H. Angell, United States Commercial Agent in France, shows the condition of labor in that country to have been in some respects even worse than in our own during the summer. Quoting the figures of the Central Labor Bureau in Paris, Mr. Angell shows that a very large proportion of workmen were without employment in the month of August last. From 645 labor unions, representing a membership of over 129,255, reporting at the central office. it is shown that about 14.4 per cent. of all the laborers of the country are still without employment. Of these unions 53 report the situation to be worse than it was one year ago. In the agri-cultural districts over 67 per cent. of the laborers are still without work, and in the wine districts this percentage is increased to about 80 per cent. The report enters fully into the condition of the workingman in all branches of trade and industry, and makes a startling exhibit of the extent of the industrial depression in France.

The Cotton States and International Exposition, to be held at Atlanta, Ga., has secured a chime of heits, which is said to be the finest ever assembled in this country and larger than that at the World's Fair in Chicago. They are to be placed in a tower 150 feet high, on the big Manufactures and Liberal Arts Building of the exposition.

A new cordage concern, under the title of the Western Twine Company, have been organized to undertake the speedy sale of the 20,000 tons of twine held by bankers as collateral security for loans to the old National Cordage Co.

## STEAM AND HOT WATER.

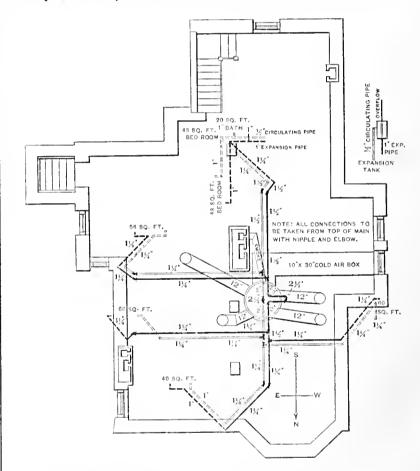
## A Tested Combination System.

Various methods are used for heating buildings by a combination hot air and hot water apparatus. The system described and illustrated is in a residence at Plattsburgh, N. Y., where it has been in use one winter, giving entire satisfaction. The method followed is to heat the upper floor by hot water radiators alone, and the lower floor, with the exception of the hall, by hot air registers. The plant was arranged by W. M. Mackay, New York manager of steam and hot water department of Hart & Crouse, Utica, N. Y., using a No. 53 Prince Royal combination heater. Fig. 1 shows the cellar plan, with the hester and its equipments. Fig. 2 shows the first floor and Fig. 3 the second floor. The heater is located central floor and Fig. 3 the second floor. trally in the cellar, as shown in Fig. 1, and is supplied with cold air by a 10 x 30 inch duct leading from a western exposure outside. This duct has an area of 300 square inches and feeds four 12 inch pipes leading to 12 x 15 inch floor registers in the front and back parlors, hall and diaing room, as shown in Fig. 2. These pipes have a combined area of about 450 square inches, so that the air supply is a little less than three-quarters of the delivery. This insures a positive change of air in the house, as there are two fire places to aid in disposing of the air in the house to make room for the constantly incoming supply of fresh air. The use of floor registers avoids otherwise necessary turns in flues and a probable reduction in size, which retards the air flow, and so reduces the efficiency of the heater and increases the coal bill. From the water heater a 21 inch flow main rises to T, from which a 2 iuch branch main runs toward the front and the back of the house. The back main is reduced to 11 inches after passing a 11 lneh branch, which runs to a radiator of 56 square feet of surface placed in the chamber over the dining room. It then runs back to a point where it terminates in a 11 inch riser, which has a 1-inch branch to a radiator of 48 square feet of surface in the chamber over the back parlor and another 1-inch branch runs to a radiator of 20 square feet of surface in the bathroom, as shown in Fig. 3. After passing the bathroom radiator a 1 inch circulating pipe is taken to the expansion tank, which is placed in the bathroom, as shown. This is to cause a circulation in the expansion tank to keep the water warm and prevent its freezing. Return pipes of the same size as the flow pipes are connected with the return end of the radiators and follow the flow mains back to the heater. In the bathroom a 1-inch pipe is run from the return pine of the radiator to the expansion tank to provide for the expansion of the water in the entire system when it becomes heated. From the top of the expansion tank a 1 inch pipe runs above the roof for an overflow; also for an air vent or steam vent. The connections to the expansion tank are shown in the diagram at the right in Fig. 1. The flow main to the front of the house has a 1?

inch branch to a radiator of 68 square feet of surface in the downstairs hall. It then is reduced to  $1\frac{1}{3}$  inches and runs to another  $1\frac{1}{3}$  inch branch, which feeds a radiator of 60 square feet of surface in the chamber over the front parlor. This main then continues  $1\frac{1}{3}$  inches till it terminates in a 1-inch riser to a radiator having 40 square feet of surface in the chamber over the hall. The method of apportioning the heating surface required in the chambers is the same as is generally used in calculating surface for an all hot water heating plant. Some difficulty has been experienced in com-

reply from Colorado Springs was to the effect that the Buffalo fans in a high school were giving perfect satisfaction; another from Salt Lake City was that the plant was most satisfactory and the economy in fuel notable. There were four schools and a hospital in that city using the system. Still another reply from Denver was that the system, which was used in the Denver schools, was both efficient and economical.

THE IDEAL BOILER COMPANY, 36 Dearborn street, Chicago, Ill., send out an advertising card showing a large



A Tested Combination System,-Fig. 1.-Cellar Plan, with Heater and Piping.

bination heating in getting the heating surface in the rooms warmed by radiators so proportioned that the furnace when fired properly will warm the air heated rooms. In this system, after the upstairs radiators are supplied, the surplus capacity of the water heater is utilized in the radiator in the hall and the surface it exposes seems to have been correctly determined, as the plant has been entirely satisfactory to the owner.

#### HEATING NOTES.

The St. Louis School Board recently investigated the claims of the Buffalo fan system of heating and ventilation, and in reply to inquiries sent to several places where the system was in use received the following. One

section of the nipple joint used in the new Ideal boiler with brief reference to its advantageous features. A small sectional cut of the entire boiler shows its construction and arrangement of the heating surface.

A STEAM HEATING COMPANY has begun the work of laying pipes on Broad street, Chester, Pa.

ONE of the new things on Centre street, New York, is a black shield with a red band hearing in gold letters the address of the Holland Radistor & Mfg. Company.

IN THE ADVENTISEMENT in last week's issue of The Metal Worker of the Magee Furnace Company, it was erroneously stated that the hot water capacity of their combination heater was from 75 to 100 square feet of radiating surface.

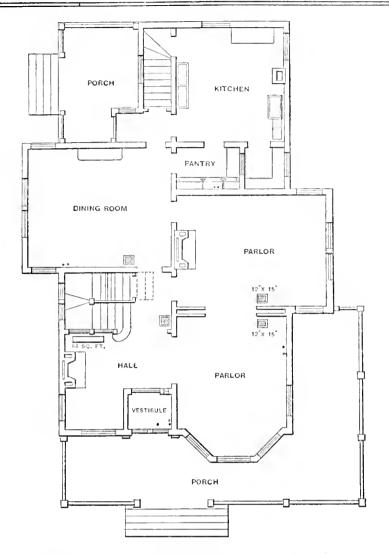


Fig. 2.—First-Floor Plan, Showing Registers and Hall Radiator.

The figures should have been from 75 to 700 square feet of radiating surface. Our readers will notice that this is a decided difference and shows the extensive range of the combination apparatus.

Berlanger & Bosse are a new firm in the heating business at Montreal, Canada.

D. R. McCallum, the manager of the New York (ffice of the J. II. McLain Company, Canton, Ohio, has made a requisition on the foundry for three carloads of assorted Humber, Cambridge, Yale and Sandow steam and hot water heaters. A carload that has just arrived is being distributed, and a satisfactory trade is reported.

UNITED STATES HEATER COMPANY, Detroit, Mich., issue a small poster calling attention to the Capitol and Hecla steam and hot water heaters. On the card are illustrations of many buildings in which these apparatus have been installed.

One of the ornamental attractions of the showroom of Blake & Williams, 188 South Fifth avenue, New York, is an oak sample board on one of the walls in a handsome frame. Arranged on it is a full line of their pipe hangers for attaching to wood, iron girders or brick work, all finely tinned and displayed with artistic effect. The showroom contains a variety of steam and hot water apparatus, their own hoiler, of course, filling the place of honor. A number of water and steam gauges, damper regulators and direct and indirect radiators are shown.

Through their agents, the Providence Engineering Company, the Mason Regulator Company of Boston have installed during the past month the following boiler feed pumps in the city of Providence: American Electrical Works, No. 8 pump; Kent & Stanley Company, No. 6 pump; Continental Steambost Company, two pumps; American Dagras & Chemical Company, Brownell, Field & Co., Providence Journal Company and Butman & Tucker.

J. II. Colman, Jr., representing the New York office of the J. H. McLain Company, Canton, Ohio, starts to-night for a trip among the steam, hot water and hot air furnace trade of New England.

C. M. Converse, Western manager of the Elwood Iron Works, 96 Lake street, Chicago, is distributing blotting pads with numerous useful features. An ensmeled card is fastened to the blotter, which is marked off as a 9 inch rule, bears an October calendar, states postage rates and incidentally calls attention to the new E wood radiator.

The Lord & Burnham Company, Irvington-on-tht-Hudson, N. Y., issue handsome publications relating to greenhouse heating and ventilating apparatus. One of the pamphlets is a catalogue and opens with illustrations, sectional and general, together with descriptions of their hot water bollers, which are made in a variety of sizes. Their steam boiler is similarly illustrated. Their self feeding hot water boiler, which is a somewhat smaller construction, is designed for heating greenhouses, conservatories, baths and other buildings where their regular boilers would be too large. Their hot water stove is another construction; then comes a variety of cast iron pipe and fittings adapted to this sort of work. Vapor pans and expansion tanks are

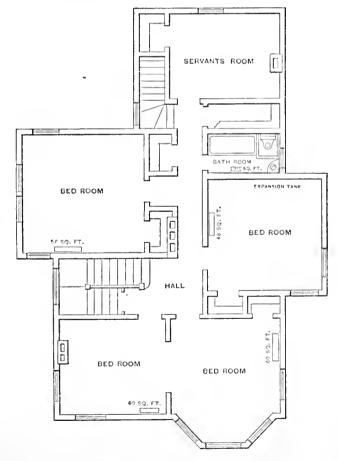


Fig. 3.-Second-Floor Plan, Showing Radiators.

next noted, then the ventilating apparatus and other greenhouse fittings. At the close are a number of testimonial letters. A second publication is devoted to illustrations and descriptions of greenhouses that have been erected by the Lord & Burnham Company recently in different parts of the country. Some of the structures are exceedingly elaborate and comprise houses for various uses. Both the volumes are finely printed and present a most attractive appearance.

A COUPLE of small publications, somewhat larger than leaflets and somewhat smaller than pamphlets, issued by the Gurney Heater Mig. Company, 163 Franklin street, Boston, Mass., will be appreciated by the trade. One of them is called "Opinions," and is a little, yellow bound, four page publication addressed to the dealer handling the Gurney heaters and gives him some valuable pointers on how to impress the customer with the merits of these apparatus. The second states that an Arabian horse with a mule's head and a zebra's tail is not an Arabian horse—similarly, the Gurney apparatus if installed with unsa'isfactory radiators is thereby lessened both in value and usefulness.

THE ROYAL STEAM HEATER COM-PANY, Gardner, Mass., have been rushed with business ever since the new factory was opened. Some of the men, it is reported, have had to put in over 70 hours a week lately to keep up with the work.

The Engineering Magazine has in its October issue inaugurated a "Review of the Industrial Press," the aim of which department, as explained in the magazine, is to give expert reviews of the most important publications of the month in every field of applied science; to supply a complete index to all the leading articles published in the scientific and industrial journals of all the English speaking peoples, and finally, through a press clipping bureau, to furnish the original and full text of the articles so noted. This feature of the magszine will be much appreciated by those whose time is so limited that they cannot themselves scan the multitude of trade and technical papers that are issued every week.

The Heath & Milligan Mfg. Company of Chicago, the well-known paint manufacturers, have sustained a loss in the death of Mouroe Heath, president and founder of the company, which occurred suddenly at Asheville, N. C., on the 21st inst. Mr. Heath was born March 27, 1827. He was one of the prominent citizens of Chicago, having been honored with the cilice of Mayor.

Arrivals of steerage passengers from Europe at New York are beginning to show an increase over the figures of the past few months. Last week's arrivals were the highest for a long period. Most of these people are, however, not new immigrants, but have already been in the United States and are returning after visiting their native countries. True immigration into this country is still below the emigration out of it.

The announcement is made of the discovery of a new and rich gold field in the Calico mining district of Californis.

#### The Phillips Gas Heaters.

The Phillips Gas Stove Works, 92 East Eighth street, Cincinnati, Ohio, have recently placed upon the market some new designs in gas heaters, illustrations of which are given herewith. Fig. 1 represents an open front reflector au attractive asbestos flame plate. The flame plays over the asbestos in such a way as to cause it to become lineandescent, producing a brilliant effect, while throwing out at the same time an intense heat. These designs are referred to by the manufacturers as being rish and artistic and well calculated to meet



The Phillips Gas Heaters .- Fig. 1.-Heater with Polished Copper Reflector.

heater suitable for use in dwellings or offices. The ornamental top, front and base are made of cast iron, while the casing is of Russia iron. The reflector

with a large sale. The heater shown in Fig. 1 is 35 inches high, 25 inches wide and 20½ inches deep, with a reflector opening 16 inches square. The con-



Fig. 2.—Asbestos Gas Heater.

is of highly polished corrugated copper, and the makers state that the burners give a flame free from odor and powerful in effect. Fig. 2 represents an asbestos gas heater having highly polished corrugated copper reflector with

sumption of gas, as stated, is 21 feet per hour. The asbestos heater shown in Fig. 2 is 36½ inches high, 26 inches wide and 21½ inches deep, with reflector opening 17½ inches square, and consumption of gas 231feet per hour.

## PLUMBING and GAS FITTING.

#### Master Plumbers of Arkansas.

The Master Plumbers' Association of Arkansas held its first annual convention at the Richelieu Hotel, Little Rock, Ark., last week for the purpose of or-Ark., last week for the purpose of organization. J. A. Monagan of Eureka Springs, State vice-president for the National Association, and about 35 others were present. The following is a partial list of those who attended:

J. A. Monahan of Eureka Springs; M. F. Smith, W. H. Bruce and A. Richert of Fort Smith; W. H. Bonner and J. W. Millmine of Hot Springs; F. A. Stanley and A. J. Robinson of Pine Bluff; W. J Buhrman of Texar-kana; C. H. Barnes, representing the American Boiler Company of Chicago; L. B. Yeiser, representing Ahrens Oct Mfg. Company of Louisville; Nick Peay, A. Rogoski, J. M. Dungan, J. J. Coughlin, W. B. Brooks, E. C. Platt, L. and A. Mandelbaum, A. Melcher, John Hughes and Smith Glidewell of Little Rock.

After organizing and discussing the work of the association the following officers were elected: President, Michael Smith of Fort Smith; vice president, Frank Stanley of Pine Bluff; treasurer, A. M. Melcher of Little Rock; secretary, John M. Dungan of Little Rock.

Executive Committee: H. W. Bonner of Hot Springs; Nick Peay of Little Rock; J. A. Robinson, Pine Bluff.

Sanitary Committee: A. V. Rogoski of Little Rock; F. J. Hughes of Little Rock; A. A. Mandelbaum, Little Rock; J. W. Millmine, Hot Springs; Aug.

Richards, Fort Smith.

An informal banquet was tendered the delegates by the meater plumbers of Little Rock at the Richelieu at which covers were laid for 30.

#### Illinois Plumbing Ordinance.

The Illinois Master Plumbers' Associstion are appealing to their members to work for the passage of a State law for the regulation of plumbing work that has been drawn up for presentation to the State Legislature. The bill, which is printed below, deserves the warmest support of all who are in terested in the cause of sanitation and good health:

good health:

Section 1. No person, firm or corporation not now engaged in or working at the business of plumbing, shall hereafter engage in or work at said business in this State, either as a master or employing plumber or as a journeyman plumber, unless such person, firm or corporation first receives a license therefor, in accordance with the provisions of this act.

SEC. 2 Asy person desiring to engage in or work at the business of plumbing, either as a master or employing plumber or as a journeyman plumber, shall apply to the board of health having jurisdiction in the locality where he intends to engage in or work at such business, and shall, at such time and place as may be designated by the Board of Examiners hereinatter provided for to whom such application shall be referred, he examined as to his qualifications for such business. In the case of a firm or corporation, the examination and licensing of any one member of the firm or the manager of the corporation, shall satisfy the requirements of this section shall not apply to cities quirements of this act; provided, the provisions of this section shall not apply to cities

or towns where the inspector of buildings has control of the regulations regarding

has control of the regularious plumbing.

SEC 3. That there will be in every city and each town of five thousand inhabitants or more, and in each town having a system of water supply or sewerage, a board of examiners of plumbers, consisting of the chairman of the board of henlth, and in cities or towns having an inspector of buildings, the inspector of buildings of said city or town, who shall be members ex-officio of said board, and serve without compensation, and a third member who shall be a master plumber. Said third member shall be appointed by the mayor of said city or town within three months from the passage of this act, for the term of one year from the first day of May, in the year of appointment, and thereafter annually before the first day of June, and shall be allowed a sum not exceeding five dollars for ench day of actual service, to be paid from the treasury of such city or town; provided, that if in any city or town there is no inspector of buildings, said board of health shall appoint a second member of said board of examiners who shall be a master plumber, and whose term plumbing.
SEC. 3. That there will be in every city and said board of health shall appoint a second member of said board of examiners who shall be a master plumber, and whose term of office and compensation shall be the same as is heretofore provided for said third member. The common conneil of all cities shall annually insert in their tax levy a sufficient sum to meet the expenditures incurred under the provisions of this act; and all expenses incurred by the several boards of examiners in the execution and perform.

all expenses incurred by the several boards of examiners in the execution and performance of the duties imposed by this act shall be a charge on the respective cities, and shall be andited, levied, collected and paid in the manner as other city charges are audited, levied, collected and paid.

SEC. 4. Said board of examiners shall, as soon as may be after the appointment of said third member, meet and organize by the selection of a chairman, and shall then designate the times and places for the examination of all applicants desiring to engage in or work at the business of plumbing within their respective jurisdiction. Said board shall examine said applicants as to their practical knowledge of plumbing, house drainage and plumbing ventilagage in or work at the husiness of plumbing within their respective jurisdiction. Said board shall examine said applicants as to their practical knowledge of plumbing, house drainage and plumbing ventilation, and if satisfied of the competency of the applicant, shall so certify to the board of benith or inspector of buildings, as the case mmy be, in their respective city or town. Said hourd of inspectors shall thereupon issue a license to such applicant authorizing him to engage in or work at the business of plumbing, as master plumber, or employing plumber, or as a journeyman plumber. The fee for a license for a master or employing plumber shall be two dollars; for a journeyman plumber it shall be fifty cents. Said license shall be valid and have force throughout the State, and shall be renewed unnually upon payment of a fee of fifty cents. In case of removal beyond the jurisdiction of the board or inspector issuing the original license, it may be renewed by any hoard having like authority.

Sec. 5. The board of health or inspector of buildings of each city or town, mentioned in section three of this act, shall, within three months from the passage of this act, appoint one or more inspectors of plumbing, who shall be practical plumbers, and who shall hold office until removed by said inspector for cause, which must be shown. The compensation of such inspectors shall be determined by the board or inspector appointing them, and be paid from the treasury of their respective cities or towns. Said inspectors shall inspect all plumbing work for which permits are hereafter granted in their respective tities or towns. Said inspectors shall nespect all plumbing work for which permits are hereafter granted in their respective tities or towns. Said inspectors shall nespect all plumbing work for which permits are hereafter granted in their respective tities or inspector all violations of any law, ordinance or by-law, relating to plumbing work, and also perform such other appropriate duties as may be required.

Sec. 6. Eac

priate duties as may be required.
SEC. 6. Each city and town of tive thousand inhabitants or more in this State, and every town having a system of water supply or sewerage, shall by ordinance or tylaw, within six months from the passage of this act, prescribe rules and regulations for the materials, construction, alteration and inspection of all pipes, faucets, tanks, valves and other fixtures by and through which waste water or sewernge is used and charted, and provide that no such pipes, tanks, faucets, valves or other fixtures shall be placed in any building in such city or town, except in accordance with plans which shall be approved by the board of health of such city or town, or such person or persons as said board of health may designate; and shall further provide that no plumbing work shall be done except in designate; and shall further provide that no plumbing work shall be done except in case of repair leaks without a permit being first issued therefor upon such terms and conditions as such city or town shall prescribe.

scribe.

SEC. 7. Any person violating any provision of this act shall be deemed guilty of a misdemeanor, and be subject to a fine not exceeding tifty dollars for each and every violation thereof, and his license may be revoked by the examing board provided for in section three in this act.

SEC. S. All acts and parts of acts inconsistent herewith are hereby repealed.

#### Mayor, Lane & Co.,

128-132 White street, New York, are completing the show of plumbers' goods in their sample room, having moved into their large seven story building early in the summer. The sample room covers a space of 100 x 150 feet. At the entrance Mr. Mayor of the firm has a small office, where all queries concerning the infinite variety of things required in the plumbing supply trade are answered. At the rear and extending across the showroom, under a skylight, is the accounting department. At the front of the showroom are showcases, in which are arranged all the small tools employed by the plumbing craft, while against the east wall are arranged hatchet bolts, round irons and a number of other tools, as well as soldering furnaces using charcoal and gasoline. Another showcase displays against a black silk velvet background a variety of basin cocks and fixtures. On the west wall, at the entrance, a handsome decoration is made of round and oval lavatory bowls, plain and embossed and ornamented in gilt and colors in flower designs and scenes. The columns supporting the building are also employed to support decorations formed of the same goods. An Italian marble platform extends along the east wall, on which are arranged water closets of various descriptions, their Puritana siphon closet occupying the position of honor, followed by the Meritana, Pil-grim, Perfecto and Plymouth wash out closets, all of which are connected with flush tanks and can be shown in oper-A portion of this wall is occupied in the display of shower baths of different styles and character, the most attractive being a bath fitted with all the sprays used in sanitariums. After these are shown a variety of slop sinks in porcelain lined cast iron, white porcelain and earthenware. Parallel with this exhibition is a line of handsome lavatories of onyx, Numidian African, Tennessee and Knoxville marbles, fitted with open work plumbing fixtures and a variety of atyles of basin cocks, all nickel plated. Some of the lavatories are supported by ornamental legs, while others rest on brackets. On the opposite side of this row are still other lavatories, including the double

lavatory adapted for use in barber shops, with shampoo and shower bath attachments, and some handsome pantry sinks with marble slabs and nickel fittlngs. Across the aisle from this dis play are arranged bathtubs of various styles and finishes. The first to catch the eye are two handsomely decorated Roman baths of enameled cast iron, followed by roll rim French baths, wood rim baths, &c. After these come a varied line of steel clad baths in different shapes and sizes. These baths are fitted with various styles of supply and waste and some with shower bath attachment. Across another aisle is a handsome display of water closets arranged five tiers in hight, each tier forming a complete circle, topped by a circular crown supporting five Puritana water closets in different stylcs of decoration and finish. This is a novel show and very attractive. At the back of the showrooms are displayed a variety of laundry tubs of slate, sospstone, brown Yorkshire and porcelain, as well as a varied assortment of hopper closets, ranging from the plain cast iron construction to the porcelain lined and carthenware. The most fascinating of the various attractions is found in two small rooms, fitted up as modern bathrooms. One room is floored with white tile laid in blue cement, the joints giving a very pretty effect. The side walls are walnscoted with cream colored tile, decorated with gilt fleur-de-lis, a richer shade of buff being carried from the top of the tiling to the ceiling, which is ornamented with a stucco design, the relief portlons of which are gilded, while the ceiling is finished in similar style. In the center of the ceiling is placed a large electric globe, with smaller globes at each corner. The fixtures consist of roll rim Roman bath and onyx lavatory with gilt trimmings and Puritana water closet.

A shower is arranged in connection with the bath, and the entire room is likely to prove a source of interest to all who may visit it. The second room is floored with sea green tile, while tile of a light blue color wainscot the side walls. The walls above the tile wainscoting are finished in a blue tint, forming a very pretty contrast. At one side of this apartment the wall is divided into two panels, one of which is handsomely ornamented and the other beautified by the use of a French glass mirror. The ceiling is finished similar to the one previously described and the fixtures in this room are as elaborate in their appointments as those contained in the apartment already mentioned. Besides these rooms several styles of urinal stalls and fixtures are shown.

#### TRAPS AND VENTS.

THE 1894 CATALOGUE A just published by the Bailey-Farrell Mfg. Company, Pittaburgh, Pa., is an elaborate and handsome volume. In size it measures 10 x 13 inches, is bound in cloth, with a gilt title and contains over 200 pages. This firm, who are well-known manufacturers of sanitary plumbing goods, have in this catalogue, so they advise the trade, presented only such articles as are of a high sanltary quality and have, in consequence, eliminated much that was heretofore illustrated. They have made many additions of new goods and a general revision of prices. trade and architects are invited to visit their showrcom at 621 Smithfield street, where the goods illustrated are set up for inspection. The opening pages show bathroom interiors in various arrangements. Porcelain lined batha

are next noted, 24 pages being given up to this one class of goods, the large and finely executed engravings showing the articles to excellent advantage. Then articles to excellent advantage. follow 12 pages devoted to Corinthian percelain lined roll rim baths in various Other roll rim baths, the Hyperion and Plutus, come next, then the Brighton and after them the Amphiou. diagrams of floor space required for the different baths being an excellent feature of this section of the catalogue. Other different styles of baths follow. Then come six pages of colored representations of finely decorated porcelain lined rell rlm baths. The different styles are illustrated and an excellent idea obtained of the tasteful decoration of these goods. Foot and seat baths are next noted; then attention is given to wash trays, lavatories, wash stands, slabs and bowls, ainks, alop sinks, slop hoppers, kitchen sinks, &c. The next general division of the work is devoted to flush rlm hoppers and hopper closets for valve and tank supply, this being followed by hopper traps and other goods. Special santtary fixtures take up the next division and shower baths, closets, ncedle baths, sinks and urinal stalls complete the work, which ends with an alphabetical index. Altogether it is a very well arranged volume and will be appreciated by the trade.

THE TIRRILL GAS MACHINE COM-PANY, 39 Dey street, New York, have recently placed a gas machine in the residence of Mrs. Stewart, at Kent, Conn. They have also put a mschine in the new residence of Arthur Duane in Sharon, Conn.

R G. WALKER has moved his plumbing establishment from the Odd Fellows' block to the brick block nearly opposite his old location at Muskegon, Mich.

H. L HURLBURT Williamsburg, Pa., having been appointed to superintend an extensive plumbing contract in Philadelphla, has sold his plumbing shop at the corner of Hay street and Rebecca avenue to the new firm of Barton & Murray. The members of the firm are James H. Barton and James C. Murray. Mr. Barton is an experienced gas fitter and brass worker, having been engaged in work of that description for over eight years with the Westinghouse Air Brake Company at Wilmerding. Mr. Murray comes from Pittsburgh, where he has been engaged in the plumbing business for five years.

L. A. GARRETT has opened a tinning and plumbing shop at Cobleskill, N.Y.

THE ILLINOIS MASTER PLUMBERS' ASSOCIATION is a new corporation without capital stock that has filed papers at Peoria, Ill., to advance the interests of the plumbers' trade. The incorporators are John M. Slmpson, John O'Neill, Jr., John Nailon, Daniel O'Connor, John H. Redmond and W. W. Murphy.

H. D. BERNER, 43 Centre street, New York, 18 issuing a 40-page catalogue, interesting to the plumbers who fit up beer pumps. It includes all of the fixtures made by the Cleveland Faucet Company, Cleveland, Ohio, and the illustrations show the various methods of using them. Two pages are devoted to small illustrations of the various parts for repulrs, with prices.

THE PLUMNERS' SUPPLY ASSOCIATION of Boston, Mass., held their monthly meeting and dinner at the Quincy House last Saturday evening. F. J. Knox presided. Twenty five members were present.

W. N. BAILEY, a well-known plumber who had a shop on Aliso street, Los Angeles, Cal., died recently of blood poisoning and typhoid fever. He had been ill only a few days and his death was the result of an accident. He was working at an earthen closet pipe and jarred it with his hand to get it loose, when the pipe burst and a mass of the foulest refuse fell all over him. His hand was also cut by the pipe and some of the poisonous matter got into the cut and caused the blood poisoning. He leaves a wife, but no children.

W. A. MYERS has removed bis gas and electric fixture and supply store to 147 West Third street, Williamsport, Pa.

THOMAS MARKEY, who has been in business in Indianapolis, Ind., for the past 12 years, is now located in room 7, Builders' Exchange, where he is conducting a business in plumbing, gas and steam fitting.

S. Davison, 56 Beekman street, New York, informs the trade that on September 12 the agreement between the Steel Clad Bath Company of New York and himself was canceled by mutual consent. Mr. Davison has concluded arrangements with the Day-Ward Company to represent them as their sole selling agent. Referring to the Ward steel cased bath made by this firm, it is described as having a patent overflow and non-conducting lining of asbestos between the two metals, hesides being rust proof.

B. & H. II. Sommer, 50 Cliff atreet, New York, are issuing an illustrated six-page sheet of their plumbers' marble goods, lavatories, water closets, porcelain laundry tubs and enameled cast iron bathtubs, with a variety of basin and bath fittings.

WALTER RISTINE has gone into the plumbing business at Stockton, N. J.

The Creditors of the Archer & Pancoast Mig. Company, New York, representing 80 per cent of the liabilities, through their committee, consisting of Col. S. V. R. Cruger, John C. Granger and William S. Fearing, have decided on a plan of reorganization of the company.

AMERICAN FAUCET COMPANY are a new corporation with their principal place of business at San Francisco, Cal. The capital stock is \$800,000, and the following are the directors: J. F. Chandler, John L. Howard, A. F. Gunn, Wallace Everson, J. W. Phillips, C. W. Randall, B. E. Handy, Charles D. Pierce, Oakland; Joha Martin, Berkeley; George H. Merrick, San Francisco.

JOHN L. DUNN, Indianapolis, Ind., has been in the plumbing business over 40 years and has done the work in some of the largest buildings in the city.

THE PLUMRING, STEAM AND GAS FITTING in some of the largest buildings in his State have been done by Geo. W. Keyser, Indianapolls, Iad. He makes a specialty of heating work.

THE PLUMBING FIRM of C. Aneshaensel & Co., Indianapolis, Ind., make a specialty of gas and electric work, their showrooms containing a bandaome display of these fixtures.

IN DESCRIBINO the characteristics of an up-to-date plumber a local paper writes as follows of Wm. L. Manton, 47 Manton avenue, Olneyville, R. I.: "Those who occupy the front ranks in the trade are men of brains, of ideas; they are men who have added to a naturally acute mental outfit—observation, study, research; they are men who

are filled to the brim with a comprehension of the latest discoveries and inventions in their lines; who adopt the newest ideas, tools of the most modern design and methods of work that are conceived by the brightest thinkers of the age. To be a popular sanitary plumber now-a-days means to be in touch with the foremost minds of inventive genius. No dullard need apply if one seeks to win renown as a plumber. The old ways have given place to new methods that combine knowledge, originality, expertness."

IN AN ITEM in The Metal Worker of October 13 we referred to the firm of Reilly & Mabec, Amsterdam, N. Y., as having been granted a plumber's license. The name of the firm was, however, erroneously stated and should be Pillig & Mabec of 52 Wall street, Amsterdam, N. Y.

E. W. BLATCHFORD & Co., Chicago, Ill., issue circulars relating to their specialties that will interest the plumbing trade. One is devoted to Babbitt metal of varied composition. A second alip refers to their S traps, made extra long at both ends. Also § S and P traps of similar design. Cuts show the dimensions of the traps. The third circular refers to traps and bends.

James Wilson of Buffalo, a plumber, is about to locate in Franklinville, N. Y.

ISAAC L. VARIAN has opened a plumbing establishment in the building on Railroad place, Danbury, Conn.

#### Trade Notes.

JOHN J. STEFFEN advises the trade under date of October 20 that he has removed from his former residence, 1503 South Eighth street, Philadelphia, to Norristown, Pa., post office box 172.

Through the courtesy of the Indiana Wire Fence Company, Crawfordsville, Ind., we have received a souvenir copy of the Crawfordsville Journal, which contains a description and shows a half tone engraving of their plant, which has recently been enlarged.

THE H. W. JOHNS MFG COMPANY, with New York office at 87 Maiden Lane, issue a pamphlet entitled "Heat Insulation and Fire Protection in Prominent Buildings." It is published in the interest of their asbestos pipe and boiler coverings and consists exclusively of fine half tone engravings of buildings, boiler rooms and other places in which their asbestos material has been smployed. The first page shows two boiler rooms, together with pictures of the cruisers, "Castine," "Machias" and "Marblehead." The front page of the publication shows an engraving of a block of asbestos with the name in Greek characters printed

Joseph Dixon Crucible Company, Jersey City, N. J., and 68 Reade street. New York, advise us that their trade in Lead Pencils and Graphite Paints is particularly good, the demand for this kind of Paint for roofs and metals continually increasing. The paint is put up in cans of 10, 25, 50 and 100 pounds, ground in oil, and in barrels of 450 pounds. Thinned and ready mixed it can be had in lots of 5, 10, 25 and 50 gallons.

THE CHAPMAN TIN Mrg. COMPANY have removed from Clifton Springs, N. Y., to Newark, N. Y.

THE ASBESTOS MANUFACTURING PLANT of the Philip Carey Mfg. Company, Gilbert avenue, Cincinnati, was completely destroyed by fire, caused by the boiling over of a pot of pitch, on October 24. The loss is estimated at \$55,000, with an insurance of about \$33,000.

IN THEIR FULL PAGE ADVERTISEMENT in this week's issue the Excelsior Mfg. Company, St. Louis, illustrate a few of the many Electros which they have in stock, and which will be sent to the trade on application. These Electros are made to be used in either single or double column in newspaper advertising as may be preferred. They are set up in attractive style, and the dealer using them will doubtless be rewarded by the increased demand for the goods made by this enterprising firm.

C. M. AVERY has been appointed as the direct representative of the Horton Mfg. Company, Fort Wayne, Ind. The company manufacture Washing Machines in a variety of styles, also Corn Planters, and have, we are advised, largely increased the facilities of their already well equipped plant. The Western Combination Washer is referred to as a new special machine at a very reasonable price.

W. W. FERRY, with C. W. Dunlap, 88 Chambers street, New York, has been made sales agent of the Avery Stamping Company, Cleveland, Ohio, for the New England States, New York, New Jersey and the cities of Philadelphia, Baltimore and Washington. A sales office has been established at the above address.

THE DAVID MAYDOLE HAMMER COMPANY, Norwich, Chenango County, N. Y., makers of solid crucible cast steel Hammers, issue an illustrated eatalogue and price-list, which shows a large number of new styles of Hammers, as well as those already known to the trade. The manufacturers remark that the same high standard of work which has for 50 years characterized these goods will be maintained on Hammers bearing their old trademark. On different pages throughout the catalogue are given illustrations of some of the awards made to Maydole Hammers by different expositions.

THE ADVERTISEMENT elsewhere of the Estate of A. Froelich, 289 Peurl street, New York, directs attention to the extensive stock of stove repairs and stove dealers' supplies which they manufacture and carry in stock. The trade are invited to send for catalogue which has just been issued.

THE PLANT of the National Brass & Iron Works, Reading, Pa., is reported as running night and day with 225 hands. Orders are being received from every section of the country.

A New York daily has been collecting statistics from the various labor unions in regard to the unemployed workers in this city. In all trades the number of persons at present out of work is estimated at 110,500. Of this number, metal workers, including tinsmiths, roofers, molders, brass finishers, &c., are credited with 10,000 unemployed.

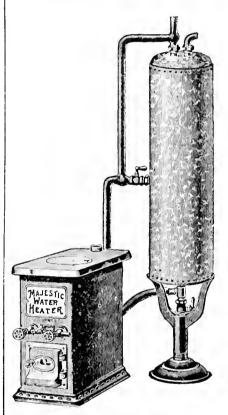
Custer City, South Dakota, has just had located there a plant for the manufacture, among other goods, of stove blacking and mica for the stove trade.

The production of Spelter in Silesia for the first six months of 1894 amounted to 45,824 tons, as against 44,-

788 tons for the same period in 1893. The deliveries during the first six months of 1894 amounted to 44,305 tons, as against 44,898 tons during the same period in 1893.

The Majestic Water Heater.

The subject of our illustration is the Majestie gas water heater, made by the Majestic Mfg. Company, 2004 and 2008 Morgan atreet, St. Louis, Mo. It is designed to furnish hot water where no range or stove with a water back is convenlent for connection with the boiler. The heater is said to present a direct tire surface of 1368 square inches and has a capacity for holding 4 quarts of water. It occupies a space 9 x 14 inches on the floor and is 23 inches high. It will be noticed that it is connected to the boiler at both the side and top, and when the stop cock at the side connection is closed, it is claimed that it will



The Majestic Water Heater.

supply hot water direct, raising the temperature from 70° to 118° in ten minutes, and when the side connection is open it will heat a 40-gallon boiler in 60 minutes. It is said that a number of these water heaters sold have given excellent satisfaction. Circulars can be had on application which explain the advantages claimed for the double connection and give full particulars in reference to it.

Press reports state that a combination has been formed by the coal and coke operators of the Kanawha and New River Valleys, W. Va., with the object of reducing selling expenses and fighting the railroads on the question of rates.

The contract for the foundation of the Manufactures and Liberal Arts Building of the Cotton States and International Exposition, Atlanta, Ga., was let last week and contracts for the nine principal buildings are about to be given out.

# THE RETAIL STORE.

### Reversible Towel Rails.

Robert Ferguson, 51 Mcrcer street, New York, sole manufacturer for the patentee, is introducing the reversible towel rail as shown by the accompanying illustrations. This device censiats of three polished and lacquered brass arms, 12 inches long, held by nickeled balls on both ends in a nickon being opened the food is drained and early handled.

Santariet is the name of a liquid preparation sold by George Starrett, 227 Water street, New York, that is said to absolutely prevent the rusting or corresion of either cast or sheet iron stoves that are coated with it. It should be applied with a soft brush, or on sheet

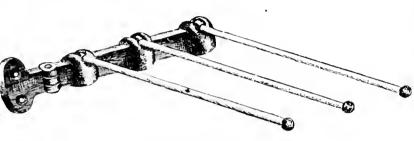


Fig. 1.—Hinged Towel Rails.

eled hinged bracket 63 inches extreme length. The bracket is alike on both sides and can be acrewed to the front or back of a washatand on either right or left side, or can be attached to door or window jambs, or other wood work. When not in use the arms can be lifted upright and allowed to drop, hanging perpendicularly, or in use all or part can extend to the front or rear,

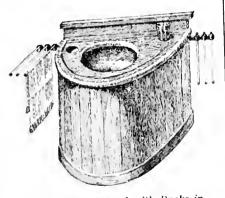


Fig. 2.—Washstand with Racks in Position.

whichever is most convenient. Fig. 1 shows the bracket with sockets alike on both sides. Fig. 2 shows the racks in and out of use on a washstand. In lots of five gross sizes from 7 to 14 inches can be furnished to order at the same price. The smaller sizes can be used as clothes racks.

#### MEMORANDA.

A. W. OBERMAN, 59 South Fifth avenue, New York, is putting on the market a new rice boiler of enameled ware. It is a perforated ball made in two parts hinged together, and when closed fastened with a spring. It is said to be excellent for cooking meats, fish, puddings, fruit or vegetables, without scorching them. It is designed to be suspended in the boiling water, and when the cooking is finished the ball may be lifted out of the water, and

iron with a soft woolen cloth. Sheet iron stoves coated with it can, it is said, be stored in cellars without damage, and no difficulty is found in blacking them.

TRETHAWAY BROS., Parson, Pa., who have hitherto done only a retail trade in stoves and tinware, have commenced to manufacture tinware in all its branches. They are about putting an improved dinner pail on the market.

Joseph Lennon of Islip, L. I., is among the few fortunate dealers whose business can hardly be said to have been affected by the general depression. During all of 1893 and so far this year he states that his business has been good, and he has all the work he could do.

Sidney Shepard & Co., Buffalo, N.Y., issue catalogue and price-list No. 58, illustrating and describing the goods manufactured and sold by them. The book, closed, measures 8½ x 11 inches, and contains 236 pages bound in flexible cloth covers. Full page views of the company's Buffalo and Chicago offices and warerooms, also of factories A and B, occupy positions at the front of the book, and are followed by an alphabetically arranged index. The goods are arranged in departments, as follows: Pages 13 to 92 include the company's manufactures; pages 93 to 221 are devoted to outside goods for which they are agents and other goods which are also carried in stock, and pages 222 to 236 give lists of goods which the company can ship direct from the points of manufacture. The book is well printed on a good quality of paper and blank ruled pages are interleaved at convenient distances apart for making memoranda of new goods, prices, &c. The company have recently added to their manufactures a line of Kitchen Ware made from pure aluminum. They now supply and have in preparation the following goods, which are made in all the regular sizes: Dish, Bread, Fry and Jelly Cake Pans, Tubed Cake and Muffin Pans, Coffee Pots, Milk and Dripping Pans, Pie Plates, Perfection Tins, Mountain Cake Pans, Dippers, Corn Cake Pans, Tea Steepers and Tea Kettles. The

other lines of goods illustrated are Stamped Ware, Pieced Tinware, Polished and Retinned Pieced Tinware, Japanned Ware, Toilet Ware. Water Coolers, Galvanized Ware, Coal Vases, Elbows, Baking Pans, Oil Tanks, Milk Cans and Can Stock, Freezers, Tin Plate, Galvanized Iron, Metals and Tinners' Supplies, Granite and American Blue and White Enameled Steelware, Kitchen Utensils, Tinners' Machines and Tools. &c.

chines and Tools. &c.

The Wells & Nellegar Company, 72-76 Lake street, Chicago, issue a catalogue comprising 1160 pages, beautifully printed, handsomely illustrated and strongly bound in half morocco, arranged to lie flat when opened at any place. It begins with Carpenters' and Woodmen's Tools, in which are included related lines. Next follow Tools of a miscellaneous character and Farm and Garden Tools. Builders' Hardware then takes up a great deal of space. Horse Furniture and Wheelwrights' Supplies are next in order. After these come House Furnishing Goods in great variety. Cutlery is an important section, which naturally runs into Table Ware.' Guns and Sporting Goods take up considerable space. Oil Cans and Stove Furniture come next. A large section is devoted to Pieced and Stamped, Granite, Blue Enameled and Aluminum Ware, with Kitchen Utensils. The closing pages are taken up with Tinners' Stock and Tools. Not only is the arrangement of the contents very convenient for reference, owing to the method employed, but extreme care has been taken with the illustrations so as to present them in a way pleasing to the eye rather than to economize space. Those who receive these catalogues are special'; favored by having their names stamped on the back in gilt letters, which is a graceful compliment that will no doubt be highly appreciated by the recipients.

THE HORTON MFG. COMPANY, Fort Wayne, Ind., makers of Washing Machines and Corn Planters, issue an 1895 catalogue and price-list which shows the Western Combination Washer, Western Washer, American Washer, Wayne Round Washer and the metal bottom Western Washer, also the Superb and American Corn Planters. Their special Machine, the Western Combination Washer, is referred to as being sold at a very reasonable price and as having been received in the market with gratifying favor.

The Congress of the Argentine Republic is now engaged on the consideration of a bill which aims at a material reduction of customs duties. In some cases the proposed reduction amounts to 25 per cent. on foreign importations, but the average change will be about 15 per cent. Many goods of American manufacture, particularly agricultural implements, lumber and kerosene, will benefit by the proposed new rates.

It is stated that H. B. Plant of the Plant system has bought the Florida Southern Railroad, which runs through 250 miles of the richest agricultural and phosphate lands in the State, for \$2,000,000.

# ROOFING AND CORNICE.

#### Patterns for Chimney Top.

I From C. A. B., Decatur, Teras.—I send a sketch of a chimney top that is used a great deal in the Panhandle, where the wind is so constantly blowing. It is impossible for a flue to smoke that is provided with a top of this description. For the benefit of the younger members of the craft I would like to have the method of obtaining the patterns for top published in The Metal Worker. The side pipes should be at an angle of 45°.

Answer.—In Fig. 1 is presented a view of the chimney top for which pat-

their respective sections, as shown by A B C D, A B C D and A B C D. Commencing at the same points in each, space the three profiles into the same number of equal parts. From the points thus obtained carry lines parallel with the sides of pipes, and from the points of intersection draw the miter lines F G F' and J K J'.

For the pattern of E F G F' E', proceed as follows: On E E' extended lay off a stretchout of A B C D, as shown by W W', through the points in which erect the usual measuring lines. With

take the length of lines in E F G F E', and, using attrethout line W W as the base of measurements, set off on lines of similar number the length of lines in E F G F' E'. Through the points thus obtained trace lines, as shown.

For the pattern of horizontal pipe, on II H' extended, as R' R, lay off a stretchout of A' B' C' D, through the points in which draw the usual measuring lines. Place the T-square parallel with H H', and, bringing the blade against the several points in miter lines F G F', cut measuring lines of corre-

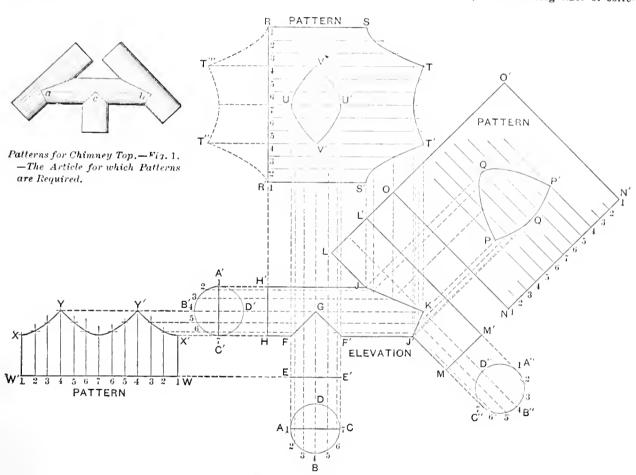


Fig. 2.-Method of Obtaining the Patterns.

terns are required. An inspection of the figure will show that the horizontal pipe a b is joined to the two angling pipes at a and b, and these two joints are similar; also that the perpendicular pipe c intersects the horizontal pipe a b at right angles. In Fig. 2 the joint at a is omitted on account of space and for convenience in obtaining the patterns, as the pattern for b will answer for that at a. Then, in Fig. 2, let E F G F' E' represent the perpendicular pipe, H' J K J' H part of horizontal pipe, and L L' M M' the pipe at an angle. In line with the three pipes draw

the T-square placed parallel with E E', and bringing the blade against the several points in the miter lines F G F', cut measuring lines of corresponding number drawn through the stretchout W W', as indicated by the dotted lines. Trace lines through the points thus obtained, as indicated by X Y Y' X'. Then X Y Y' X' W W' will be the pattern for part of article shown in elevation by E F G F' E'. If it is not convenient to obtain the pattern by means of the T-square, draw the stretchout line W W' and erect the usual measuring lines. By means of the dividers

sponding number, as indicated by the dotted lines drawn from F G F'. Lines traced through the points thus obtained, as shown by V U' V' U, will give the shape of opening to be cut in the pattern for the pipe E F G F' E'. If an edge is desired for turning over after the two pipes are joined, the opening can be cut smaller than indicated. With the T-square placed parallel with the stretchout line R R', bring the blade successively against the points in the miter line J K J', and cut measuring lines of corresponding number, as indicated by the dotted lines. Through

the points thus obtained trace lines, as indicated by S T T S', thus forming the required pattern. S T T S eau be used for marking off the other end of pattern, as indicated by R T "T" R'. For the pattern of pipe L L' M' M, proceed as follows: Extend L L and M M, as shown. On M M extended lay off a stretchout of A" B" C" D", as shown by N N, and, with the T-square placed at right angles to N N', draw N O and N O', also the measuring lines, as shown. To obtain the shape of opening in pattern represented by miter line J K J, it is only necessary to draw lines from the points in stretchout line corresponding with points in the miter line J K J, as indicated by lines drawn from points 4 to 4 in stretchout line. Place the T square psrallel with M M, and, bringing it successively against the points in miter line J K J', intersect the corresponding measuring lines. Trace lines through the points thus obtained, as shown by P Q P' Q', thus obtaining the desired shane.

#### FLASHINGS.

A. H. BUCKINOHAM, New Haven, Conn., has taken the contract for all the copper and metal work on the new Normal School Building. He has put up the copper bays and cornice on F. C. Cannon's double house on College street, and also has the metal work on E. Borges' new block on State street.

PARKER GRACE will erect a fourstory apartment house at 50 Oak street, Chleago, that will have copper faced bay windows.

J. R. BRYANT & Co., Crawfordsville, Ind., are finding an increased sale for their Crestile conductor, which serves as a ridge roll and is made of galvanized sheet steel. Special excellence is claimed for it as a protection against lightning.

MILTON II. BURK is one of the live tin and slate roofing and cornice men of Crawfordsville, Ind.

C. B. RICKERT, 194 Clark street, Chicago, has contracts for the copper work, skylights and slate roofing for the Chicago Public Library Building, Marquette Building, State and Van Buren streets; Trinity Parish House, Michigan avenue and Twenty-sixth street; copper work and tile roofing for the residence of President Harper, Chicago University.

The new Central School House, at Webb City, Mo., has a zinc roof, and being in the midst of the zine mining district of Missouri the citizens are very proud of it, and are using every endeavor to extend the use of zinc for roofing.

The ill-fated new Louisville and Jeffersonville bridge across the Ohio River was the seene of another accident on the 17th inst. Three men were hurt, one perhaps fatally. The accident was caused by the falling of a part of the false work under the fourth span, which had just been completed and locked. The men were engaged in removing the false work which is to be transferred to the fifth and last span. They were at work on the first bent or division of the structure. The top timbers had nearly all been removed when the remainder of the section collapsed.

#### Electric Light Standard.

We illustrate an electric light standard, two of which were made by the Ludlow-Saylor Wire Company of St. Louis, Mo., for the new Union Station in that city. They are made entirely of iron, with black iron finish, and stand 9 feet in hight. They are placed on either side of the port cochire, which extends beyond the main entrance to the station, and the port cochire is also

that 2394 representative manufacturing industries located in 46 cities paid out in wages in 1892 \$50,838,383.41; same in 1893 paid out \$43,903,857.57, a decrease of \$6,933,516.

The British Board of Trade returns for September show a falling off in the values of both exports and imports as compared with the corresponding month of last year, although the figures at that time were reduced by the great coal



ELECTRIC LIGHT STANDARD.

surrounded by an iron area rail, a portion of which appears in the engraving. There is some 75 feet of the area rail, which is finished the same as the standards. Both the standards and area rail were made from drawings by the architect of the entire structure, T. C. Link. We understand that these standards are the first of their kind ever made in St. Louis.

A City of Mexico special to the Boston Herald reports that the importations of railway iron and steel from Europe into Mexico show considerable increase over the same period of last year.

The coming report of the State Commissioner of Labor, in Ohio, will show strike. The imports are valued at \$145,200,000, a falling off of \$5,424,000, equal to 3 per cent.; and the exports of British and Irish goods at \$84,480,000, a decrease of \$4,008,000. The largest decreases in imports are in food stuffs, oils and metals. In exports the greatest falling off is shown in textile fabrics, machinery and wearing apparel.

A wail comes from Hamilton, Ohio, because that usually bustling little city is not recovering from the lethargy into which its mannfacturing Interests fell at the beginning of hard times. Business is referred to as being stagnant, while the number of unemployed is very large, with no prospect of work during the coming winter.

### HEATING & PLUMBING.

#### NEW WORK AND CONTRACTS.

THE UNIVERSALIST BUILDING COMMITTEE have closed a contract with C. W. Dewey, Galesburg, Ill., for a complete steam heating and ventilating system for their new Universalist Church Building, now being erected, and will use a No. 158 Florida steam boiler.

AT Forty-seventh street and Calumet avenue, Chicago, M. M. Brown will erect 19 three-atory flat buildings that will be heated by steam from three central plants, and hot water will be furnished from central plants also.

P. J. DULANTY, Ashland, Wis., has secured the plumbing contract for the new Booth Packing Company's building.

AT A SPECIAL SCHOOL MEETING at Amityville, N. Y., last week, \$5000 was voted to heat and furnish the new school house.

COOK & CHICK, 253-255 Kinzle street, Chicago, have the contract for steam heating the 3-atore and 14-flat building of T. J. O'Neil, Lincoln avenue and George street.

II. J. IRWIK, Carthage, N. Y., is putting a new ateam boiler in Hotel Elmhurst.

JOHN S. GREPE is building a \$20,000 residence at South Evanston, Ill., to be heated by hot water and fire places, and gas ranges will be used for cooking.

Russell B. Powell will erect a three story apartment house at Forty-seventh street and Prairie avenue, Chicago, to be heated by steam.

THE Boynton High School House, at Eastport, Maine, is to have a modern system of heating. The old furnace has been removed and a hot water heater is to take its place. E. S. Martin and Albert M. Bibber have the contract for fitting the building, at an expense of about \$600.

C. M. CHASE, Weat Winsted, Conn., made a contract to heat the Town Building, and will put in a Volunteer steam heater.

THE St. Paul's Episcopal Church, at Windsor Locks, Conn., is to have a new steam heating apparatus for the church building.

THE ALBERENE STONE COMPANY, 217 Lake atreet, Chicago, are to furnish 18 combination sink and laundry tubs for the Reyworth Apartment Building, North Halatead atreet and Oskdale avenue.

THE FULLER & WARREN COMPANY, 147-149 Lake street, Chicago, are to place their warm air furnacea in the following residences: J. G. Tait, Forest-dale avenue; Callagan Bros., West Adams atreet; J. L. Cochran, Edgewater; H. A. Wische, Argyle Park; H. N. Taylor, Wilmette.

GOULD & NOWLEN of Bath, N. Y., are putting the steam heating fixtures in the *Herald Block*, at Hammondsport, N. Y.

M. J. Burke will erect at 4213 Wabash avenue, Chicago, a three-atory apartment house at a cost of \$15,000, to have steam heat and modern plumbing.

SHICK & HAUSMAN, Catasauqua, Pa., have the contract to furnish A. H.

Hahn's Grand Vlew Hotel with a steam heating apparatus.

HUELETT & HAY of Racine, Wis., have been awarded the contract for putting in ateam heating in a \$10,000 residence to be erected on Washington boulevard, Chicago, for George A. Rose.

IN REFITTING the Gymnasium Building, at Colorado College, Denver, Col., a steam heating system and shower baths will be put in.

E. E. PARKER, Woburn, Mass., will install Richmond boilers in the residences of J. W. Hutchinson, Peter llorn and U.S. Richardson, at Winchester, and will use a Gurney steam boiler in a large building at Winchester Highlands.

TAYLOR & TAYLOR, Meriden, Conn., were awarded the contract to put in the ateam heating apparatus at the Pavilion, at Hanover Park; also for the carrousel.

W. HACKETT has awarded the contract for the plumbing in his new apartment house to J. A. Campbell & Co., New Haven, Conn.

SHEAHAN & GROARK, New Haven, Conn., have the contract for the plumbing in the new house of John Cronan.

THE town of Westerly, R. I., has voted to build a new high school building at an expense not to exceed \$30,000.

J. L. Cochran will erect, at Edgewater, Ill., two residences to have modern conveniences and furnace heat.

A FOUR STORY APARTMENT HOUSE will be erected at 194 Cess street, Chicago, by Oliver & Hill, at a cost of \$20,000, to have steam heat and a plumbing system.

F. L. Bray, Derry Depot, N. II., has completed the installation of a hot water heating plant in the residence of John Taylor, at Salem, N. H.

G. A. SUTER & Co., 139 South Fifth avenue, New York, secured the contract for the steam heating plant for the new building of the American Surety Company, at about \$50,000. They will use Babcock & Wilcox boilers.

Purves & Rockway, 215 Fifth avenue, Chicago, have the contract for steam heating in the 24-flat building of W. E. Press, Wabash avenue and Forty-fourth street.

HEEBNER & Sons, Lansdale, Pa., have received the contract for putting steam heaters in the residences of Abram M. Hunsicker, Abram H. Freed and Monroe B. Gabel of Perkssie.

THE CHICAGO HEATING COMPANY, 40 North Clark street, Chicago, have the contract of hot water heating in the residence of Julius Mark, Rogers Park.

THE AGARD HARDWARE COMPANY, Torrington, Conn., have the contract for the plumbing in the addition to the Town House, at that place.

Baker & Shevlin, Saratoga Springs, N. Y., have the contract for placing a steam heating plant in the Town Hall.

JOHN M. ASH, Pittston, Pa., has been awarded the contract to furnish and erect the heating apparatus in the new Town Hall in Exeter Borough.

CALHOUN & STEWART, Middlebury, Vt., have quite an extensive job at the Reform School at Vergennes, the steamheating apparatus and plumbing of which are to be thoroughly overhauled in accordance with recommendations of the State Board of Health.

The American Radiator Company, 111-113 Lake street, Chicago, are furnishing 15 carloads of American radiators for the Marquette Building, Dearborn and Adams streets.

JACOB G. WEBBER, 244 North Clark street, Chicago, is to do the plumbing and gastitting in the apartment building of Robert C. Berlin, 3171 Malden street, Sheridan Park.

JOHN MALLMAN & Co., 134 Center street, Chicago, have the contract for plumbing in the store and flat building of T. J. O'Neil, Lincoln avenue and George street.

John Degnan, 3304 Cottage Grove avenue, Chicago, is doing the plumbing in the residence of W. S. Forrest, 3264 Groveland avenue.

MEYER BROS., 4146 Cottage Grove avenue, Chicago, are to place a warm air furnace in the residence of Mr. Randell, 102 Fifty-third atreet.

METZ BROTHERS, 107 Twenty-second street, Chicago, have the contract for hot water heating in the residence of G. S. Bullock, 2935 Michigan avenue.

JAMES E. DEVENEY, 2306 Cottage Grove avenue, Chicago, has the contract for plumbing in the apartment building of Nichols & Adock, Wentworth avenue and Sixtieth street.

GEORGE E. MATHEWS, Jacksonville, Ill., has obtained a contract for putting in steam heating apparatus in the business house of George Little of Rushville.

CALHOUN & STEWART, Middlebury, Vt., have completed the ateam heating plant at the college buildings, heating Painter Hall and the Chapel.

HULETT & HAY, Racine, Wis., have been awarded the contract to put in a new heating apparatus in the Y. M. C. A. Building. They have also been awarded the contract for the plumbing and heating in the new residence of Geo. A. Rose of Washington boulevard, Chicago.

THE HUNTINGTON PLUMBING COM-PANY, Huntington, W. Va., have been awarded the contract for putting in the steam heating apparatus for the Algonia Coal & Coke Company in their plant at North Fork.

AN ENTENSIVE heating plant will be introduced at the Friends' Asylum, Frankford, Pa.

SMITH & WOODHALL, Southbridge, Mass., are putting a steam heater in Peck & Co.'s store.

JAMES WIGHT, Rockland, Maine, is putting a steam heating apparatus in the tenement owned by A. Ross Weeks and F. W. Wright's house.

THOMAS K. LEMON, 626 Columbus avenue, New York, is installing the steam heating plant in ten flats for John Casey on Ninety-eighth street and ten more flats on Eighty-fourth street.

Simon Lake of Baltimore claims to have invented a serviceable submarine boat which is capable of being readily submerged to any desired depth and again raised to the surface, and of being propelled either above or below water, as required. The crew, he says, can live comfortably in the boat under water. The inventor is about to build a boat of his pattern at Baltimore, under the auspices of the Lake Wrecking & Submarine Company.

# STOVE TRADE NOTES.

#### The Cooking Carnival.

Soon all the kitchens in the United States will be the scene of such a roasting and cooking as is always occasioned by that time honored and delightful institution, the Thanksgiving dinner. Does the stove man sufficiently appreciate his opportunity to gather in the shekels of his brother through the weakness for the flesh pots at this season? The arrival of a circus in town is sufficient for the butcher, the baker and the candlestick maker to prepare special and tempting displays. His sister, the and tempting displays. His sister, the milliner, and the dry goods man also need but little exense for "a grand opening." Then why not "a grand showing of "cooking furniture" and "kitchen tools" about November 1? There are "Thanksgiving turkeys," "Thanksgiving puddings and pies." Why not "Thanksgiving ranges," "Thanksgiving roasters," and a thousand and one other things for which the sand and one other things for which the cook would give thanks if she had them? Thankagiving grates, bricks, covers and centers are bought because they are necded, and not because the stove dealer calls attention in advance to these Thanksgiving necessities.

That preparation for a Thanksgiving stove diaplay would make extra work right in the midst of a busy aeason is no excuse for not making it. The stove season is a short one and no exertion should be withheld that will increase its fruitfulness. Plan ahead for the display so as to have the goods ready, then light up your store at midnight and work till daylight, getting your attractions in conspicuous array. This will be enough to make you the town talk and bring every sister, cousin and aunt to see "the biggest bargain extant"--"A range that always bakes." Then show your roasters, pie plates, cake tins, egg beaters and all the things that your wife says are needed in a luxuriously furnished kitchen. Don't slight the men; invite them to come with their wives and point out that the greatest bane of a woman's life is a balky atove.

The stove dealer does not take hold of his opportunities. You should sound loudly your ability to supply all of the apparatus and appliances that are required to make a Thanksgiving dinner a glorious feast. Keep scintillating these facts in every direction as persistently and as brilliantly as the nickel trimmings on your stoves present their glistening brightness. This occasion should enable all sorts of stoves to be disposed of and the sales and profits for the year materially increased if the entire working corps are enlisted in the Thanksgiving enterprise with enthusiasm. The stove business is changing; so ring this change in on your people just once for a trial.

THE ELLWOOD GAS STOVE & STAMPING COMPANY OF Ellwood City, Pa., call the attention of the trade to the Ellwood gas heaters and radiators by means of a neat pamphlet of 16 pages, which has just been issued from the press. The gas heaters are shown in varied assortment, while the letterpress

makes mention of the salient features. The company state that the Ellwood gas heaters are manufactured on true principles, and suggest that dealers always order by numbers and specify the kind of gas to be used. The pamphlet is bound in colored paper covers and is arranged in a manner to interest dealers generally.

#### Philadelphia Stove Trade.

While a good deal of business has been done this month it was not of a steady character, and the volume for October will not be much larger than that for the corresponding period of last year. No business, perhaps, is governed by the state of the weather so much as the stove business, particularly in this market. A day or two of cool and chilly weather brought a large amount of trade orders, in most cases being accompanied by requests for immediate shipment; while a return of warm weather induced a condition of flatness very discouraging. The situation, therefore, is very little improved. and the bulk of business will not, in all probability, be done until cool weather acts in. There seems to be a disposition among buyers to force manufacturers and jobbers to carry their stocks as long as possible, and when there is a change in the weather everybody wants goods in a hurry. The month of November will most likely prove to be a good one as far as the volume of business ia concerned. Many orders will come in because they can no longer be withheld.

There is very little stock in the hands of retailers, and with the improvement in the general business condition of the country there should be a demand for heating goods much larger than that of last winter. The experience of last season was that it was a season of patching and repairing. In many cases repairs were made on a stove as a sort of "forlorn hope" that the stove would be able to survive the winter. The effeet of this patching will undoubtedly be felt as the winter approaches, and the activity shown during the recent cold spell may be taken as a criterion of what may be expected later on.

Oil and gas heating goods are in strong demand. The amount of business being done in these lines is really remarkable, and dealers cannot get the goods from the fectories fast enough to keep up with their orders.

Furnaces and cooking goods are moving steadily, the demand for them continuing fair. Collections are somewhat better, but they are still far from the average.

#### The Ohio Stove Trade.

Reports from the stove and range manufacturers throughout the State of Ohio, as well as from various sections in Michigan, Indiana and Kentucky, continue to be extremely encouraging. Mail orders continue to grow as the season advances, the advance in the volume of trade in September being fully maintained during the current month. Some of the foundries lay special stress upon the fact that they are drawing orders from dealers who have not been solicited. Owing to the policy of both dealers and manufacturers to keep light stocks, which feature has been previously noticed, and the rapid and liberal increase in the demand, not a few of the foundries are behind with their contracts, but as the past week or ten days have been unusually warm there has been less pressure from dealers than there might otherwise have been. The tone of some of the letters received is even jubilant and encourages the opinion that an expansion in capacity which several foundries report as under way is well founded. No complaint is made regarding collections, while on the contrary several communications specify that payments are gratifying. Individual orders do not seem to increase in size, but collectively they are growing.

It is evident from a general canvass that the West is in advance of the East in the recuperation in progress.

The situation in Cincinnatl reflects the spirit of the trade indicated in the replies received; pay rolls are gradually increasing and the outlook for the next month is favorable.

## The Kernan Furnace Company.

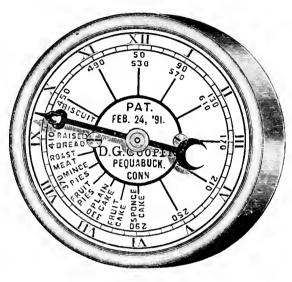
A 144-page catalogue is received from the Kernan Furnace Company, Utica, N. Y., which they call a descriptive and reference estalogue of warm air furnaces and the Kernan system of heating and ventilating. In the first few pages of the book they compare direct and indirect radiation, pointing out the base burning stove as the original exponent of direct radiation and the hot air furnace as the pioneer in indirect radiation. The importance of a good system of ventilation and also the economy of using a furnace of ample capacity are dwelt on. The next 20 pages are used in describing the different series of Kernan furnaces and combination air and water heaters, with illustrations and half-tone engravings of the complete furnace and the furnace knocked down, showing the different parts. Under the title of "Heating and Ventllation 'the next 20 pages are de-

voted to the Kernan system, showing that without some system of ventilation it is net possible to warm a building with indirect radiation, and as an illustration they say that when a pail is filled with water, no more water can be added until some has been discharged, and in a room filled with air, until some of the air has escaped mere cannot enter. Engravings are shown of School No. 19 in Utica, N. Y., with the floor plans and their system of heating and ventilation, which not only makes a continual current of warm air into the room, but at the same time exhausts the air in the reem through the ventilating shafts. A full description of this plan is given with the temperatures found in the different rooms with the air being changed several times an hour. They also show the floor plans of a house in which their system is used. In the Kernan system a heating chamber is placed on top of the furnace and connected by means of a pipe with the ventilating shaft. Into this heating chamber ex-haust ducts from the different rooms

make its appearance it is not time to predict, will be the greater because of the change in demand to stoves of less durability.

#### An Oven Thermometer.

D. G. Coeper, Pequabuck, Litchfield County, Conn., is the manufacturer of an oven thermometer of which a full-size picture of the dial face is shown herewith. The temperature registering parts are contained in a box about 31 inches in diameter, having lugs extending on two sides for fastening to an oven door. The dial extends about ½ inch in front of the lugs and the box about the same distance back of them. for attaching the thermometer to an even door a hole of sufficient size to permit the dial face to pass through should be cut in both the tin lining and in the casting. Then the lugs rest on the inner side of the tip with an asbestes washer between, and the thermometer is fastened by means of  $\frac{3}{16}$ -inch bolts. The dial hand is moved by pinions and



An Oven Thermometer.

connect. Fifty pages of names of those who have used the Kernan furnaces in different parts of the United States are given, after which 30 pages are devoted to the Kernan amoke consumer for burning soft coal. This furnace operatea by discharging at the top of the burning fuel, equally at all parts of the fire chamber, a volume of highly heated air to secure the combustion of that portion of the fuel which ordinarily cloga the furnace and pipes when soft coal is used. Several engravings are used to illustrate the construction of this furnace, so that its operation may be thoroughly understood, after which a number of pages are deveted to testi-monial letters from those who are using it. The last few pages of the book are given up to the Kernan agricultural furnaces and kettles, the Kernan double oven range, the Model Welcome, Welcome and Magic Welcome ranges and a line of several series of Welcome square

THE EFFECT of the hard times upon the stove business is apparent from the increasing number of cheap sheet iron surface burners that are being sold at the expense of the higher priced cast iron parlor stoves. As the life of such atoves is much shorter than that of the others the beom, which it may confidently be believed is in store for the stove industry, though when it will

a cogged segment of a circle operated by an arm made of two thin curved strips of metal, steel and copper, which are fastened together. These have what may be termed a normal shape at a low temperature, which begins to change at 130° owing to the copper expanding mere than the steel, when the segment is moved and the hand on the dial records the change. In use it has been found that the temperature required for baking, rosating, &c., as recorded by an accurate thermometer, varies with different atoves, so that a temperature of a certain degree is not always satisfactory. This is due to the construction of the oven door, and stoves having tin lined oven doors that are very much bulged will have a hotter even at the same recorded degree of temperature than steves having a flat tin lined door where the thermometer is more directly acted upon. Owing to this the use of a clock face has been found to give better satisfaction. A number of noted coeks, it is said, have used these thermometers, and they have also been used in some of the principal cooking achools with good results. is claimed that cooking failures may often be avoided by keeping the article out of the oven until the necessary temperature is recorded on the dial, also that aervants more readily understand the use of the cleck dial than the use improvement the company deem it betof degrees of temperature. The oven ter to put in sufficient help to do the

thermometer has been used by some manufacturers for their high grade goods with satisfaction.

#### The Bellaire Stove Company

of Bellaire, Ohio, send us a copy of Catalogue No. 3 which they have Issued relative to the Star stoves and ranges. The volume is made up of over 70 pages of letterpress carefully arranged and printed. The makers state that their assortment of stoves and ranges has been increased and a number of improvements in construction and design incorporated. The goods are classified under ranges, cooking steves and heating stoves, the first named occupying 15 pages of the catalogue. The goods are offered under the name of Brilliant Star, a new six-hole range embedying the latest improvements, and the Merning Star, a low priced four-hole range made in two sizes and seven styles. The cook stoves are represented with the Peerless Star, a fourhole construction, in the leading place. It is made in four sizes and six styles, adapted for hard or soft coal, wood or natural gas. The Morning Star, attract-ively decorated and offered in four sizes; the Star Torchlight, a four-hole coek, improved for the present season; the Bellaire Torchlight, made in two sizes, and the new Indianola, a heavy wood cook, are some of the other goods to which the attention of the trade is invited. The heaters occupy the latter half of the catalogue and are represented by the Model Parlor, a new cottage stove; the Star Adina, a first-class fancy square heater; the Star Franklin, with open front; the Oakland Star, made in three sizes, for hard or soft coal, wood or natural gas; the Torrid Star, a new cannon stove, and the Glenwood Star, an attractive box stove. A miscellaneous assortment of goods covering hollow ware, &c., completes the velume.

#### ODD PLATES.

THE WESTERN STOVE & MFG. COM. PANY have secured a conveniently located building at 66 to 70 Third street, in the heart of Milwaukee, Wis. They have just completed fitting it up with special machinery of the latest improved patterns, and will manufacture for the coming season a full line of gasoline atoves (except process) and some gas stoves. The capacity of the plant is about 300 stoves per day. Their aim will be to turn out a perfect article at the least cost. The superintendent of the factory was formerly employed in the same capacity by two of the largest gas and gasoline steve concerns in the country. The company expect to have their stoves ready for the market on or about December 15. L. Kreielsheimer is president, Jos. Bach vice-president and Max Hirchfeld secretary and treas-

THE E. P. CARPENTER COMPANY Of Pawtucket, who gave one order for 350 Magee Grand ranges, write the Magee Furnace Company of Boston, Mass., under date of October 17, as follows: "Sold ten Grands at retail yesterday."

THE CENTRAL OILGAS STOVE COM-PANY began on the 18th inst. running their works at Flerence, Mass., nine hours a day. This plan will probably continue until the days get shorter, when the works will run only eight hours and thus save lighting up. While it is true that business is showing some

work and not light up, as in this way the benefits of labor are a little more widely distributed.

BARSTOW STOVE COMPANY, with New York office at Beekman and Water streets, have brought out a new low priced range which is called the Home, for use in apartment houses and dwellings. It has six 7-inch holes, an oven 17 x 18 inches, a low hot closet, and is designed for use with a horizontal boiler having a warming shelf beneath. The fire chamber has a duplex grate.

An ELECTRIC COOKING APPARATUS has been installed in Queen Victoria's palace, at Osborne, on the Isle of Wight.

J. F. Bannon & Co, 1804 Lafayette avenne, St. Louis, Mo., have issued a circular containing the names and addresses of some of those in St. Louis who are using Economy furnaces, which the firm sell. The list is printed upon a strip of paper about 7 inches wide by 3½ feet long, and shows that in some streets Economy furnaces are exceedingly popular. For example, on Page avenue, between 3865 and 4470, there are 40 people using these furnaces, while on Cooke avenue there are 28, and on Delmar avenue 24. There are also a dozen or 15 on West Bell place, aeveral on Morgan street, while Fountain avenue, Westminster place and Windsor place are well represented.

THE CENTRAL OILGAS STOVE COM-PANY held their annual meeting at Portland, Maine, on Wednesday, October The various reports presented showed the company to have enjoyed a fairly prosperous year, not with standing the general depression in business circles. The officers elected were: President, John C. Hammond of Northampton, Mass.; first vice-president, E. A. Thissell of Northampton, Mass.; second vice president, C. W. Conant of Gardner, Mass.; treasurer, W. H. Wilder of Florence, Mass. These officers, with C. H. Hill of Chicago; Dwight S. Smith of Jackson, Mich.; L. H. Littlefield of Pawtucket, R. I.; Harlan P. Wilder of Gardner, Mass., and Henry P. Field of Northampton, Mass., constitute the Board of Directors. Mr. Thissell has been president of the company for several years past, but retires, we understand, on account of impaired health. He will, however, divide his former work with Mr. Hammond, who takes his place. The treasurer, Mr. Wilder, is well known from his connection with the manufacture of oil stoves since 1884, when he was treasurer of the American Oll Stove Company. Mr. Field is a new director and is the law partner of Mr. Hammond, who has identified himself with various enterprises and acquired a large property.

The Lion Gas Stove Company, 141-143 Ontario atreet, Chicago, Ill., are distributing to the trade an attractively printed catalogue of gas cooking and heating appliances which they manufacture in varied assortment. The engravings show the designs of the grates to be rich and artistic, while the descriptive particulars call attention to the salient features. The grates are finished in several styles so as to meet different requirements. In the opening pages of the catalogue are suggestions for the connecting of gas grates. The goods are referred to by the manufacturers as being substantial in construction and original and artistic in design.

WE UNDERSTAND that the molders' strike at the foundry of Charles Fawcett, at Sackville, N. B., is practically

over, and that nearly all the vacancies have been filled. The trouble began shortly after Mr. Fawcett occupied his new building, when he made an agreement with his molders to resume operations at a 10 per cent. reduction in wages. The men worked three days, thus keeping, as they claimed, their part of the agreement, and then they struck for an increase of 10 per cent. advance on the original wages paid.

CHARLES SPECHT, well known in the wholesale stove trade in New York and especially to the retail dealers on the East Side, died on Monday evening of this week of apoplexy with which he was stricken while at work. He will be remembered as the East Side expressman who for many years did nearly all the expressing of stoves and materials for the retail stove dealers on that side of the city. For the past four years he was employed by the Union Stove Works as a porter.

FLETCHER, RUSSELL & Co., Limited. Warrington, England, favor us with a copy of the October issue of their catalogue of gas cooking and heating appliances. It is a volume of 135 pages, profusely illustrated, and presenting ample descriptive particulars relative to the goods shown. In a supplement which accompanies the catalogue attention is invited to a line of stoves designed for use in shops and offices where it is inconvenient to connect with a flue. The stock patterns are made for use without flues, but can be supplied the other way when so ordered. The goods are shown under the name Ruby and are made in various styles.

ADAM GRANDER of the Grander Stove Company, Royersford, Pa., was one of the visitors among the New York stove trade during the week.

P. B. Acker, treasurer of the Union Stove Works, New York, has been confined to his home about three weeks with aggravated bronchitis and a slight touch of pneumonia. His friends will be glad to learn that he has about recovered his health, and expects to return to business in a few days.

ABENDROTH BROS., Beekman and Pearl streets. New York, one day this week, had their shipping department crowded with large boxes, in which were packed cooking stoves for shipment to a South American customer.

Runel & Brother is the name of a concern recently incorporated at Chicago, Ill., with a capital stock of \$15,000, for the purpose of making a line of ranges. The incorporators are Frank D. Rubel, Louis L. Rubel and Louis Adler.

THE CHICAGO & ERIE STOVE COM-PANY of Erle, Pa., are distributing circulars of their Invincible fire place burner and of the Sapphire gas stove. The former is provided with a multi-radiating gas burner, a portion of which is formed by the entire back of the heater where there are nearly 400 small openings. When the gas flowing through these is lighted the entire back, covered with asbestos fiber, is an incandescent sheet of light. The makers state that the large number of small jets of gas render the device particularly powerful. The Invincible is finished in a varied number of styles, such as ebony, bronze, brass and nickel plate. As the ascending heat is always liable to overheat the top of the outside frame, the company have a protecting and reflecting plate connected with and under the hood in order to prevent, as much as possible, discoloration. The inside top of the

heater can be removed by taking out two nuts, so that the hand can be inserted to fasten the frame in place. This top has a slide in it which can be opened or partially closed to make the exit passage larger or smaller according to the draft of the chimney in connection with which the heater may be used.

ONE NOTICEABLE IMPROVEMENT in the New York stove business this fall over that of last year is the promptness with which the dealers pay their bills, due to the fact that their jobbing has been better and their purchases of stoves more conservative.

THE MONITOR VAPOR STOVE & POWER COMPANY of Grand Rapids, Mich., filed articles of association with the county clerk on Saturday, October 13. The capital stock is \$32,000, and the company will manufacture and sell motors, engines, machinery, bosts, &c. The stockholders include William S. McCoy, T. Stewart White and Thomas Friant.

A PATENT for a cook stove was granted early in the month to Stanhope Boal of Piqua, Ohio. The object is to provide a wood cook with a low down hearth and square oven of such form and construction that it can be readily turned into a coal stove if desired. Another object is to provide a swell form of door and side plates to which the oven doors are hinged so as to increase the capacity of the flues as well as of the oven, while at the same time adding to the attractiveness of the stove without increasing the cost.

THE DAYTON MFO. COMPANY of Dayton, Ohio, are rapidly pushing to completion the addition to their plant, and expect by November 1 to have everything in readiness for the manufacture of gasoline goods.

THE WROUGHT IRON RANGE COMPANY of St. Louis, Mo., have lately commenced active operations looking to the asle of goods in Northern New York, by M. D. Carter taking possession of the Berkley Vance house and barn, on Elm street, Norwood, N. Y., as headquarters of the business. The team employed for traveling through the country round about consists of a wagon made for the purpose and drawn by a pair of mules. The latter were shipped from Missouri and are said to be remarkable for their size, fine condition and good looks. The name of the company appears on the box of the wagon, and we understand it will travel through that section until the public is supplied with Home Comfort ranges.

THE PITTSTON STEEL RANGE COM-PANY, Pittston, Pa., report a very satisfactory local trade, and intend erecting a new building shortly which will give them increased facilities. The concern is a comparatively new one, and make a specialty of Our Home steel ranges.

The Moon Range Company of Columbus, Ohio, favor us with a folder of the Interchangeable gas heater, a new candidate for popular favor at the hands of the trade. The grate employed is 8 x 15 inches and the burner is 2 x 10 inches, with holes drilled around the entire edge. The heater stands 34 inches in hight and measures 33 x 23 inches at the base. It is so arranged that the entire top portion can be lifted off and a grate substituted, thus adspting the stove for cooking purposes. In the operation of the stove a portion of the heat is deflected toward the floor from the asbestos plate, while a portion passes through the openings at the top of the deflector into the drum, the lat-

ter having a pipe collar with a sliding damper. The makers refer to the device as being economical in operation and that no points of the heating appliance have been sacrificed to gain the cooking attachment. The Interchangeable is meeting with a good demand and the manufacturers expect it will increase in popularity as its merits become known.

ISAAC A. SHEPPARD & Co., Philadelphia, are developing some improvements in their line of furnaces, which, when introduced, will be much appreciated by the trade. They are also working on a new line of ranges which, in beauty of design, will rank well with the leading ranges on the market. The firm are strong advocates of art in stoves and heating goods, and their pattern makers are busily engaged in reproducing the ideas of some of our most skillful artists in the way of stove ornamentation.

The Baxter Stove Company of Mansfield, Ohio, report "trade about 20 per cent. better than for the same time last fall, although our business last fall was pretty good."

Chas. Noble & Co., Philadelphia, with their accustomed forethought, are providing each of their customers with calendars for distribution to the trade. The calendars this year comprise eight different designs, lithographed in colors, the subjects being of a kind which will insure appreciation.

THE LITTLEFIELD STOVE COMPANY of Albany, N. Y., have commenced the erection of a large storehouse adjoining their foundry on North Pearl street in the city named. At the present time the manufacturers are very busy on orders, and are said to be having about all they can do to fill them without operating the plant overtime.

IN A COMMUNICATION RECEIVED from the Monarch Stove Company, Mansfield, Ohio, successors to the Baxter Stove Company in the manufacture of gas and vapor stoves, Emmett C. Baxter, the general manager, states that there seems to be a prevailing impression among the trade that the separation from the latter concern is not a bona fide one, and to correct such impression, desires to state that it is and that he has disposed of his entire interest in the Baxter Stove Company, having acquired the sole ownership of one-half the business of the Monarch Stove Company, two brothers, Edwin D. and Berry A. Baxter, jointly owning the remaining half. The Monarch Company lease the second and third floors of the immense factory building of the Baxter Stove Company, in the front end of which they have fitted up in very handsome style two offices, with steam heat, electric light and all modern con-veniences. They have just moved into these quarters and are now ready for business. The manufacturing department, under the supervision of Berry A. Baxter, the superintendent, will have additional machinery installed, which has been contracted for, consist-ing of new stamping and drawing presses of large capacity for making steel tops, ovens and other parts, while the entire shop is undergoing radical changes having in view the best possible arrangement for the most perfect and rapid production of goods. It is expected that everything will be in readiness for turning out completed vapor and gas stoves by November 15, and patterns for many new improve-ments and original features to be em-

braced in the Monarch line will be ready for samples by the 1st prox.

THE GIRARD STOVE & FOUNDRY COMPANY of Youngstown, Ohio, write: "We have had a fair trade this fall. We have had enough orders to keep going, but are not accumulating."

THE EXCELSION STOVE PATTERN COMPANY, Detroit, Mich, are distributing neatly printed cards calling the attention of the trade to their facilities for turning out stove patterns of artistic design. One card carries an illustration of an open Franklin stove and the other of the Excelsior oak. With regard to the latter, the company state that it is rich in design, satisfactory in construction and up to date in every particular. They also call attention to their fine assortment of cork pine, and state that they can promptly fill orders for any thickness.

THE ART STOVE COMPANY of Detroit, Mich., write: "We are glad to report that with the incoming of October our mail orders took a tremendous jump. We are running full force, and are a good many hundreds of stoves behind."

RATHBONE, SARD & Co. of Albany, N. Y., are mailing to the trade a sheet showing nearly 100 different styles of trade-mark and advertising cuts, together with samples of new stationery for dealers' use.

THE FAVORITE STOVE & RANGE COMPANY of Pequa, Ohio, are complet ing a brick building for core ovens which, together with the new machinery they have purchased, adds to their capacity, which the orders being now received indicate will be fully needed.

F & L. Kahn & Bros. of Hamilton, Ohio, state: "Our trade is beyond all reasonable expectation. Orders are remarkably distributed. Our September sales were about 40 per cent. ahead of those of 1893 for the same month. October promises to show a similar improvement. We have recently improved our new square Oak Radiator."

Cole & Cole, Council Bluffa, Iowa, are sending to the trade a circular calling attention to Cole's air tight heater, which they claim is the best in its class. The circular referred to contains a mass of interesting information concerning their stove which will be appreciated by the retail stove dealer. The circular also states that the C. W. Hackett Hardware Company, St. Paul, Minn., are agents for Minnesota, and Lee-Clarke-Andreesen Hardware Company, Omaha, Neb., are agents for Nebraska.

THE SHINNICK, WOODSIDE & GOB-BONS MFG. COMPANY of Zanesville, Ohio, report business "booming," with orders for their new pattern 1894 Sensation cook, Gem Franklin and Red Oak especially active.

THE QUICK MEAL STOVE COMPANY, St. Louis, Mo., have already commenced booking orders for next year. Among the first accured by them is one calling for seven carloads, or 1800 stoves in all. This is a very propituous beginning and is an indication that the coming season will more than compensate for the falling off experienced during the season just closed.

Buck's Stove & Range Co., St. Louis, report a phenomenally heavy demand for their Buck's Royal air tight heater and Buck's steel ranges. The former is adapted for either hard or soft coal or coke and will, it is said, keep fire for 48 hours. The manufacturers are at present making between 30

and 40 daily, but are unable to keep ahead of their orders. Their steel ranges are about as popular; in fact, they have been compelled to deplete their sample room of ranges to fill their orders.

Hess, Snyder & Co. of Massillon, Ohio, have made some improvements in their wind mill pumps and are preparing an engraving to circulate among those interested. They report orders for their furnace much better than expected.

J. D. Marvin and Edwin A. Keating, representing Rathbone, Sard & Co., at their New York salesroom, at 254 Water street, are issuing an invitation to the trade to call and see a full sample line of the Acorn ranges and parlor stoves. Special attention is called to the promptness with which they can fill orders and the question is asked "Have you seen our new catalogue of specialties for your trade?"

THE EXCELSION MEG. COMPANY OF St. Louis, Mo., illustrate the Junior Hot Blast surface burner by means of a circular which they are distributing to the trade. It is a parlor stove designed for using soft coal, hard coal or coke, and so made that it can be converted into a self feeding hard coal stove by means of a magazine which the makers furnish. The stove is neat in appearance, the ornamental fretwork surrounding the inside structure of the lower half of the stove and the space between the body and the casing serving to heat the air which finds its way in at the bottom through a number of openings made for the purpose. The circular also carries an illustration showing the top section dismounted, the arrangement being such as to facilitate the making of necessary repairs.

CLEVELAND CO-OPERATIVE STOVE COMPANY of Cleveland write they are extremely busy, and orders are flowing in without particular solicitation. Business promises to be very satisfactory in volume.

Speaking to a representative of the Philadelphia Ledger a day or two ago about the present aspect of business among the Schuylkill Valley industries, President Charles S. Prizer of the Reading Stove Works, Reading, Pa., is reported as saying: "The situation today is much better than at this time a year ago. All indications point to a sound and steady improvement in business, although there is nothing to warrant an extraordinary increase of trade. This year there is a feeling of confidence and security throughout the country. We are constantly receiving orders from sections with which we did not do any business last year."

AT A SPECIAL MEETING held this week the Dippo Mfg. Company, Chagrin Falls, Ohio, decided to change their name to the Ferrosteel Company. The president of the concern and the directors, we understand, are highly gratified with the reports that have been received from dealers and others who have used Ferrosteel ranges or any of the products of Ferrosteel. The general offices of the company will be at Cleveland and the works at Chagrin Falls, as heretofore.

Petroleum exports from the United States in the month of September were 75,656,000 gallons, as compared with 81,526,000 in the corresponding month last year. Total exports since January 1, 1894, have been 650,971,000 gallons, against 644,304,000 gallons in the first nine months of 1893.

# TRADE REPORT.

## The Iron Market.

"After the elections" is the time now fixed for the frequently predicted revival. One grimly humorous Iron man suggests that then the date will be shifted to the next 29th of February.

In reality all the points brought up as bearing upon the situation are of minor significance when compared with the attitude of capital. As an old financier is quoted as saying: "There is only one thing more timid than \$100,000, and that is \$200,000." Until moneyed men sgain become venturesome our industries and commerce must drag along, and any happenings must simply be measured by their effect upon the courage and temper of the holders of idle dollars. It will do little permanent good to be either sanguine or impatient.

Developments in the Iron trade show a curious mixture of good and bad news. On the whole, the Eastern trade seems to feel a little more comfortable, while the West displays symptoms of

weakness.

The Wire trade throughout is in a very unsatisfactory condition, with

The Wire Rod market, too, is very weak and \$22.50 has become a general quotation.

Some Southern Iron makers are erowding the markets again and have

been lowering prices.

Pig Tin had some severe pounding last week and has dropped below 15¢. The Ricard syndicate seems to have a good deal against it in its bull campaign. Rumor has it that a large Copper deal is under way for the first quarter of next year. In some grades of Tin Plates a hardening tendency is developing.

Plg Iron. — Current business in the New York market is on a fair scale, but no large sales are reported in this immediate vicinity. Very little is being done in the Csst Iron Pipe trade, the only larger order closed lately being about 1800 tons for Beaver Falls, Pa., taken at \$19, delivered, by the Addyston works. We quote standard brands \$12.50 @ \$13 for No. 1; \$11 @ \$12 for No. 2; \$10.50 @ \$11 for No. 2 Plain, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12 for No. 1; \$10.75 @ \$11.25 for No. 2; \$10.25 @ \$10.75 for No. 3; \$10.50 @ \$10.75 for No. 2 Soft, and \$10.75 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$10 @ \$10.40.

Phlladelphia advices in regard to the Pig Iron market at that center are as follows: The condition of the Pig Iron market appears to be in favor of the selling interests, although the change from last week is very slight. Furnaces are well sold up, and deliveries are called for in a manner that leaves little or nothing on hand for spot de mand. Consumers are, of course, amply supplied for current requirements, but new contracts at the extreme low figures recently accepted are not easily placed, and in the majority of cases are promptly declined. The increased output, aggregating 40,000 tons per week

The volume of business in the Chicago Pig Iron market has fallen somewhat below the standard of the past month. Large sales are less frequent and inquiries are not so numerous. This, however, is not accepted as an indication that trade will now be dull, as October and November are almost invariably months of good business, and the general demand from all classes of foundries is expected to keep up. Southern Coke Iron is in less demand than noted last week. The leading companies claim to be well sold up again through business entered in other markets, but the smaller concerns are pressing for orders in the Western field and are again quoting close prices, thus making the market weaker. Lake Superior Charcoal is quiet. Quotations are given as follows tor cash.

	910 OU O	
Lake Superior Charcoai	\$13.00 @	
Local Coke Foundry, No. 1	10.25 @	-11.00
Local Coke Foundry, No. 2	10.00 🔞	10.25
Local Coke Foundry, No. 3	9.50 @	10.00
Local Scotch	10.25 @	11.00
Ohio Strong Softeners No. 1	13.00 @	13.50
Southern Silvery, No. 1	@	
Southern Silvery, No. 2	@	
Southern Coke, No. 2	10.50 @	10.75
Southern Coke, No. 3	<b>1</b> 0.00 <b>@</b>	10.25
Southern, No. 1, Soft	10.50 @	10.75
Southern, No. 2, Soft	10.25 @	10.50
Alabama Car Wheel	17.50 @	-18.00
Jackson County Silvery	15.50 @	16,00
Other Ohio Silvery	14.25 @	14.50

The output of Pig Iron in the Pittaburgh district is as heavy as ever, but it is being taken eare of and there is no disposition being shown to push the market for sates. Foundry Iron is unchanged, No. 1 ruling at \$11.65 and No. 2 at \$10.75, Pittsburgh.

There has been only a moderate volume of business in the Cincinnati market during the week, but stocks of Southern Iron have been reduced rather than otherwise. There is a pretty good jobbing demand in that district, there have been sales of some round lots to go East, the largest being 3000 tons, and so there is no orgency to sell such as would make lower prices in the past. There is cuite a firm undertone to the market in general, although there are some weak spots, which are found among the weaker furnaces, but still there are no lower prices quotable. The large con-sumers are getting all the Iron they require on previous contracts and are not purchasing now, but the current consumption appears to be equal to the production, and so there is no accumulation

of stocks of consequence. Quotations are as follows:

Southern Coke, No. 1	10.75
Southern Coke, No. 2 9.75 @	10.00
Southern Coke, No. 3 9.10 @	9.25
Oblo Soft Stone Coal, No. 1 14.50 @	<b>15.</b> 00
Ohlo Soft Stone Coal, No. 2 14.00 @	14.50
Lake Superior Coke, No. 1 12.00 @	12 50
Lake Superior Coke, No. 2 11.00 @	11.50
Hanging Rock Charcoal, No. 1., 16.00 @	16 57
Hanging Rock Charcoal, No. 2., 15.50 @	16.00
Tennessee Charcoal, No. 1 13.00	13.50
Tennessee Charcoal, No. 2 12.00 @	12,50
Standard Southern Car Wheel 15.75 @	16.75
Lake Superior Car Wheel and	
Malleable 14.25 @	14 75

In the St. Louis market the situation is reported as showing decided improvement as regards the volume of business, but prices are not at all satisfactory. The heavy buying at this season would seem to indicate that prices have pretty nearly reached bottom. No. 2 Foundry has been the leader, selling at \$9.75, f.o.b. cars St. Louis. This is equal to \$7, Birmingham, and is about as low as this grade has been sold. The outlook is not very encouraging for any improvement in prices, but a steady volume of business for the balance of the year seems assured. We quote as follows for eash, f.o.b. ears St. Louis: Southern Coke, No. 1 Foun-

## Metal Market.

Pig Tin.-Since the date of our last report prices for Straits Tin have dropped about 16 B lb. On the decline some 500 tons changed hands, including contracts for delivery up to and including April, 1895. Early in the week good purchases were made by consumers and jobbers. Latterly orders from those sources have been rather light, chiefly because of the demoralized condition of the market and intimations that the syndicate have shifted their burden where it may or may not be well taken care of. Apropos of the syndicate maneuvers, it may be interesting to note that Tin is cheaper now than when the brilliant deal was under full headway. There is more Tin to be taken care of, as well; probably more than the regular statistics would indicate. Arrivals since the first of the month have aggregated about 2200 tons. demand from small consumers is moderate. Prices for small lots of Straits Pig from atore remain on a basis of 171¢ ₩ lb.

Copper.—Wholesale dealings have been on a moderate scale. The demand in this line has shown no spirit whatever. In fact, hardly any movement has taken place aside from deliveries on old contracts, although lower prices have been made in a few instances to attract new business. There is some talk of another large deal being made between leading producers and large consumers for deliveries extending into the first quarter of next year, but confirmation of the same is, as usual with such deals, not forthcoming. Jobbing business in Copper is on a limited scale, with prices firm at 10½¢ for Lake Ingot in small

lots;  $10\phi$  for Ansonia grade Arizona, and  $93\phi$  for Casting Copper of the same grade.

Sheet Copper.—The movement in Sheet and other manufactured Copper is of the same nature as that described in our report of last week, that is to say, it is still confined to orders for comparatively small quantities needed to fill present requirements. Large contracts are still few and far between, but the inquiry is good. Prices for Sheet Copper remain unchanged in accordance with the list—i. e., on a net basis of  $1\xi \notin \tilde{\mathbb{F}}^2$  lb.

Pig Lead.-Opportunity has been offered buyers to duplicate purchases at prices that were accepted last week for round lots, shipment this month or next, from primal point. A few car-losds were taken, but buying interest generally has been very tame, and the market is, at this writing, showing rather weak tone. The views of the larger consumers as to prices do not come up to those of the holders of the metal, and it is rumored that in order to bring the price down to a certain level purchasing of foreign Lead may be resorted to in case of need. One large Philadelphia consumer is reported to have already provided himself with a considerable supply of Lead from abroad. The jobbing trade in Ameri-can Pig is far from brisk, purchases partaking of a hand to mouth nature. For small retail quantities the usual rate asked by jobbers is 35¢ @ 35¢ ø ib.

Lead Pipe and Sheet.—Business in this section is merely of a routine character, and mainly confined to small jobbing quantities for current use. Prices are firm and unchanged at former quotations.

Spelter.—A certain amount of strong statistical position is claimed for this metal. Eastern consumers are very indifferent buyers, however, and it is yet the fact that no advance on the late prices for ordinary Western brands has been obtained here. Relatively better prices do not appear to have been secured in other quarters, although Western purchases have doubtless been relatively larger. For small parcels of Western from store 4½¢ is about the ruling rate.

Antimony.—A very fair jobbing business has been effected. Prices for small lots remain steady at  $10\frac{1}{4}$ ¢  $\Re$  lb for Cookson's and  $9\frac{1}{4}$ ¢  $\Re$  lb for Hallett's.

Tin Plate.—A very fair spot business has been done at slightly irregular prices. Ordinary Cokes have been taken more liberally for future delivery, and some improvement is noted also in ordera for bright Charcoals, the spot supply and assortment of which are rather poor. On this account Charcoals have realized higher prices on the spot. Ordinary Cokes, ou the other hand, being more plentiful, are a shade off. Terne Plates have remained almost stationary as to price. The American product is in good demand, but several well-known brands are temporarily out of the market, owing to the closing down of many of the domestic works. The solution of the wage question appears as far off as ever, although a few of the larger Tin Plate works are again running on a conditional agreement with the men. Prices in general, both for imported and domestic Plates, are still somewhat unsettled. A more stable market is, however, looked for when the liberal supplies now in transit arrive, and the prospects are that something unforeseen must happen to carry prices higher.

A special London cable dispatch to The Iron Age, dated October 24, reports on the British Tin Plate market as follows: Tin Plate has been dull and weak. Sellers more plentiful and pressing, Wasters and Ternes particularly. More interest abown in light weight Cokes the last few days, but purchases confined mostly to rather small lots. Large amounts of Plate are loading for Frisco without affecting the market, as stocks increase under recent increased production. The Earlswood works are restarting. Swansea quotations are as follows:

Bessemer Cokes, IC	10/ @	٠
Siemens Cokes, IC	10 3 6	6
J. B. Steel Cokes, IC	10, 6.	
Dean Ternes, 20 x 28	20/-6	b
Charcoals, IC	. 11/ a	D.

Sheet Iron.—The active demand for both Black and Galvanized Sheets continues, and with the mills all practically sold up forthis month and some well into November, buyers have considerable difficulty in getting prompt shipments. Prices are firm and there is talk of an advance before long.

# Chicago Report.

Scrap.—A much better demand is noted for all kinds of Old Material. Dealers quote the following list of buying prices, Chicago delivery:

Per i	net tcn	.Per Do
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6.00	
Malleable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	3,00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&c	3.00	
Old Boilers-whole (Iron)	3.00	
" (Iron)—cut in single		
Sheets and Rings	5.00	***
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3.00	
Turnings	4 00	••••
Horseshoes	7.00	
Copper Bottoms	****	6 0
Copper Clips and Heavy		7 4
Heavy Brass		6 0
Light Brass		3 ¢
Pipe Lead		21/4
Tea Lead.		21/4
Zinc	• • • •	21/2
Rubber		
		31/4
A Alicano 14 a Mina dia dia		

Anthracite.—Trade is much more active and prices are stiff. Carload lots of 12 net tons or over are quoted as follows:

	Egg, Sto.		
	Grate.	and Ch.	
Chicago, Ill	<b>\$4.75</b>	<b>\$5.60</b>	
Milwaukee, Wis	4.75	5.00	
Kansas City, Mo	7.95	8.20	
Council Bluffs, Iowa	7.95	8.20	
Lincoln. Neb	8,10	8.35	
Sioux City, Iowa	7.95	8.20	
Aberdeen, S. Dak	8.00	8.25	
Dubuque, Iowa	6.05	6.30	
Madison, Wis	6.25	6.50	
St. Paul, Minn	7.25	7.50	
Burlington, Iowa	6.25	6.50	
Des Moines, Iowa	7.70	7.95	
Davenport, Iowa	6.05	6.30	
St. Joseph, Mo	7.95	8.20	
Leavenworth, Kan	7.95	8.20	
Omaha, Neb	7.95	8.20	

# COLORADO FUEL & IRON COMPANY.

Denver	\$8.00
Pueblo	8.00
Colorado Springs	8.00
Leadville	8.00
Cheyenne, Wyo	10.00
All points between Denver and Missouri River	
Missouri River	8.85

THE GEO. M. SHIRK REFRIGERATOR COMPANY, 114 Like street, Chicago, were burned out on the 15th inst., suffering considerable loss in stock. Temporary quarters have been established at 110 Lake street.

# CONDITION OF THE Hardware Trade.

REPORTS as to the volume of business still indicate a good deal of irregularity and unevenness, some sections and some houses experiencing a considerably better demand than others. From many parts of the West and South and Southwest reports are very gratifying, but in portions of the East business is not in quite so satisfactory a condition. There is, however, on the whole little reason for complaint, and it is evident that a great many goods are moving, most of them in comparatively small parcels.

Prices are not strong and in many lines lower quotations are ruling than some time ago. The fact that goods are thus cheap and with a declining tendency keeps down the aggregate of business, as expressed in dollars and cents, and the state of the market is at the same time such as to deter buyers from purchasing beyond their immediate requirements. There is, however, apparently a gradual and steady improvement in the business situation, and it is believed that the foundation is being laid for a good trade in the future.

Advices from Chicago.—The movement in Shelf Hardware and related articles keeps well up to the volume of the first half of the morth. Sales will therefore be considerably in excess of those of September. This is attributed to the conservative buying in August for future delivery, which was not so conspicuous a feature this year as previously. Merchants are being compelled to buy frequently now in order to supply their customers. Winter goods are doing quite well, and a better demand than expected is noted for Holiday Goods, Table and Pocket Cutlery, Silver Plated Ware, &c. The demand for staple goods has also improved to some extent, and even Barb Wire is moving better. Tinware and Tinners' Stock are doing satisfactorily. Aluminum Ware is winning its way remarkably well, considering its higher cost compared with Tin or Enameled Ware. Some manufacturers are hardly able to keep up their stock to meet the demand.

## Notes on Prices.

Wire Nails.—There is a good deal of inquiry and a fair volume of business. The market is, however, in an unsettled state and characterized by a rather weak tone. In the matter of price it is represented by the quotation of 95 cents for carload lots at mill, but this figure is shaded more or less freely, some of the manufacturers quoting as low as 90 cents, f.o.b. factory. Competition between the manufacturers is active.

Advices from Chicago.—The inquiry has considerably increased during the past week. Merchants show an inclination to stock up, especially in localities which may be affected by the closing of navigation. It would not be surprising if some heavy transactions should take place within the next week or two on this account. Jobbers report a good demand for small lots from stock and continue to quote at \$1.10.

Cut Nails.—The demand for Cut Nails continues good, though not as large as it was a little while ago. There is not much change in price, but the market is not quite as strong as it has heen. Small lots from store in New York are quoted at \$1.05 to \$1.10, with the usual average.

Advices from Chicago.— Manufacturers report a continued demand for small lots, which keeps their volume of business up to the average of the past month. Quotations on factory lots are unchanged at 90 cents, Chicago, for 60-cent averages. Jobbers are selling small lots from stock at \$1.

Barb Wire. — There is not much movement in Barb Wire at present, but inquiries for future delivery are coming in more freely. The market is somewhat weak and slightly lower prices than have recently prevailed are being quoted. The market is represented by the following quotations on Four-Point Galvanized in carload lots, at the points named: Pittsburgh, \$1.95 to \$2; Cleveland, \$2 to \$2.05; Cincinnati, Allentown, Chicago and New York, \$2.10 to \$2.15.

Advices from Chicago.—Spring orders are now being booked to some extent by the local factories, and prospects are excellent for a good volume of business of this character. Fall trade, however, is quite light and not much is received by manufacturers in the way of orders for immediate shipment. Jobbers are quoting small lots of Galvanized from stock at \$2.25, while direct shipments from factory are being made at \$2.15. They report an improvement in sales of small lots.

Cast Steel Garden Weeder.—This implement was described in *The Metal Worker* of October 13, as put on the market by Sheble & Klumm, Frankford, Philadelphia, Pa. The Weeders are sold to the trade at a discount of 60 to 60 and 10 and 2 per cent. from the Philadelphia list, and 70 to 70, 5 and 2 per cent. from the Western list.

Glass .- There are no encouraging features in the American Glass market for the manufacturers, nor is a falling market a desirable one for the merchant. Prices continue irregular and weak, while the number of Glass factories in operation continues gradually to increase. Trade is quiet and only immediate requirements are being provided for. Pittsburgh quotations are reported as being 88 per cent. discount for single, and 90 per cent. discount for double strength Glass in carload lots. with slight concessions for with alight concessions lots. larger quantities. Jobbers are quoting from 85 and 10 to 85 and 15 per cent. discount for single, and 85 and 20 per cent. discount for double strength Glass. If these prices continue to rule it is difficult to see how factories with pots can continue in successful There is nothing new in operation. the American Plate Glass situation. Plate Glass is moving in satisfactory quantities and prices remain unchanged. Imported Glass is firm at 60 and 10 and 5 to 70 per cent. discount in any quantity, from the new list of October

Old Metals.—The demand is irregular, but prices remain at about the same level that has prevailed for the past few weeks. The following quotations represent about the rates paid by New York dealers:

Heavy Copper 15 61/20
Light and Tinned Copper # 15 6 ¢
Heavy Brass 11/4¢
Light Brass 2 15 38/4
Lead # 1b 254¢
Tea Lead 29 lb 21/4
Zinc # 1b 2 ¢
No. 1 Pewter 10 to 10 ¢
No. 2 Pewter 10 5 ¢
Wrought Scrap Iron. F gross
ton \$7.50 @ \$5.00
Heavy Cast Scrap & gross
ton
Stove Plate Scrap gross ton 5.00
Deore Title Betap

Old Rags, Paper, &c.—The demand for Paper stock has shown some improvement during the week. Prices paid by dealers, New York dellvery, are quoted as follows:

No. 1 White Rags	Ъ	3	a	31/4	į
No. 2 White Rags	D	176	0	2 4	ļ
Mixed Rags	Ъ	, 0		8/10	
Blues and 3ds #	b	1	0	11/4	
Hard Sized White Shavings₩	Ъ			21/4	
No.1 White Book Snavings #	Ιb	18%		21/80	
No.2 White Book Shavings	Ъ			11/80	
Light Book Shavings #	Ъ			5/84	è
No. I Mixed Shavings ?	T.	14	0	1 4	
No. 2 Mixed Shavings	D			844	è
No. 1 Printed Books #	Ϊb	1	@	11/40	,
Ordinary Mixed Books *	D	- 36	0	2-50	è
Newspapers	Ϊb			2-50	ċ
No. 1 Manila Paper	Ъ	8/4	0	1 9	ž
No. 2 Manila Paper#	D	%	Ø	8/49	¢
Bogus Paper	Ъ			369	ŧ
Common Paper	ħ			344	
Straw Chips#	D			369	t
Binders' Clippings	Ъ			369	t
Jute Butts#	Tb.			1%	¢
No. 1 Jute Bagging₩	Ъ			11/4	ļ
Mixed Bagging₩	Īδ	8/4	(0)	1 (	¢
No. 2 Bagging	Īb	34			
Hemp Twine		1%	@	2 (	t
Manila Rope				21/8	
Jute Rope		11/4		1%	
Mixed Rope		3/4	@	76€	P
·					

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, 🕻 D	Ø	\$0.031/2
Rubber Shoes, carloads, de- livered at factory, # b	0	.04%
Rubber shoes, less than car- loads, # b	a	.04
Large Hose, # ton	0	15.00
White Wringer Rolls, # 15	@	.03%
White Syringes, # lb	0	.033/4

A Boston banker, says the Engineering News, recently received a letter from a Kansas institution soliciting bids for certain Kansas county bonds. In reply, the Boston banker stated that he could not find customers for county bonds in those States which espoused silver or Populists' ideas. "If the bonds were offered on the basis of pig sllver," wrote the banker, "a customer might be found, but on a gold basis there was no market for them in the East." And most Eastern bond dealers will bear out the Boston banker's objection to Western bonds.

The cost of fuel for the ships of the United States Navy is set forth in the annual report of the Chief of the Naval Bureau of Equipments as having been \$191,291 last year in excess of the year preceding, on account of the increased activity of the navy, due to the Brazilian, Salvadorian, Mosquito Coast and Hawaiian troubles. During the past year there were purchased at home 42,-190 tons of coal, costing \$178,163, of which quantity 9505 tons were purchased on the Pacific Coast at an average cost of \$7 per ten and 32,685 tons on the Atlantic Coast at an average cost of \$3.33 per ton. There was expended abroad \$462,192 for 52,146 tons of coal, an average cost per ton of \$8.86. Of a total of 56,722 tons of coal used by the new ships of the navy during the year, 40,521 tons, or 71 per cent., were for steaming purposes and 16,201 tons, or 29 per cent., were for auxiliary purposes, including electric lighting, distilling, heating, flushing, cooking, ventilation and ateam cutter service.

The Lick Manual Training School, established and endowed by the founder of the great Lick Observatory, has been opened for work in San Francisco.

CONTENTS.	
Editorials: PAGE.	
Young Men Without Capital 41	
The Habit of Saving 41	
Confidence 41	
Prison Labor 41	
Serap 42	:
iron Pipe Coupled to Lead. Illustrated. 43	1
A Novel Method of Illumination 43	}
Fire King Gas Grate, Illustrated 43	3
The Letter Box—	
Durable Galvanized Iron 4	1
Front Wall Trap Regulations 4	ı
Dust Collector. Illustrated 4	
The Principles of Furnace Heating 4	
Eels in Corporation Taps 4	
nels to our poraction ways	
1 Total Color 12 Minus 11 Sept.	
Idi dii Ili itoosiiiii	
Labor in France 4	J
Steam and Hot Water—	
A Tested Combination System. Illus 4	
Iteating Notes	6
The Phillips Gas Heaters. Illustrated. 9. 4	8
Plumbing and Gas Fitting—	
Muster Plumbers of Arkansas 4	9
Illinois Plumbing Ordinance 4	9
Mayor, Lane & Co 4	9
Traps and Vents 5	0
Trade Notes	1
The Majestic Water Heater. Illus 8	51
The Retail Store-	
Reversible Towel Rails. Illustrated	2
Memoranda	52
Roofing and Cornice—	
Patterns for Chimney Top. Illustrated.	53
	54
	54
Heating and Plumbing-New Work and	
Contracts	55
Stove Trade Notes-	
The Cooking Carnival	56
Philadelphia Stove Trade	56
	56
	56
An Oven Thermometer. Illustrated	57
The Bellaire Stove Company	57
	57
Odd Plates	•
Trade Report—	60
The Iron Market	60
Metal Market	
Chicago Report	61
Condition of the Hardware Trade	61 61
Notes on Prices  Metal and Miscellaneous Prices	63
	~
Labor Exchango— Help Wanted	65
Situations Wanted	65
,	

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

Saturday, November 3, 1894.

DAVID WILLIAMS,

### PUBLISHER

#### BUSINESS OFFICES:

NEW YORK	
PHILADELP	HLA220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBURG	H Room 509 Hamilton Building
CHICAGO.	.59 Dearborn Street, cor. Randolph.
CINCINNAT	Rooms 22-24 Pickering Building
8T, LOUIS	Bank of Commerce Building
CLEVELANI	312 The Cuyahoga

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Index to Reading Matter ..... Page 66.

#### System in the Shop.

"System" is of prime necessity in the successful conduct of a business of any kind. The absence of it foredooms to ultimate or at any rate to comparative failure the most promising undertaking. Industry, skill and moral rectitude will go far to secure success, but system must supplement these qualities in order to insure it. A good working system, then, for any branch of trade-that of the roofer and sheet metal worker, for example, is a valuable and desirable acquisition. It is not, however, to be secured except through experience and intelligent observation: but where it is so obtained and put into practice in a shop, the results are bound to be highly satisfactory. In this issue is printed a very valuable artic'e, by Ross F. Rainey. entitled "Shop System of Keeping Track of Sheet Metal Jobs," to which we would wish to draw the particular attention of our readers. Mr. Rainey's system, the result of practical experience, is explained by him with singular clearness and simplicity. The study of his paper and of the accompanying diagrams will, we feel sure, prove of benefit to others in the same line of trade who have not been able to formulate a good working system of their own.

#### Convict Labor on Roads.

The subject of the competition of prison made goods with those manufactnred by free labor was lately referred to in these columns, and the evil effects of the practice of employing prison labor in a manner which in any way inflicts injury on the free workingman, either by reducing his wages to meet the competition of prison made goods or by narrowing the demand for labor in his special line, was commented on. How to employ the energies of convicts so that their labor may be made really

the cost of their maintenance, while at I morrow, rest contented with things as the same time the product of their work shall not contlict with that of honest men outside of prison walls, is one that presents many perplexing features. Perhaps the most satisfactory solution of this question yet found is the employment of convicts in road making. This is an occupation that is not very much sought after by the ordinary laborer, while the condition of the average American country road presents a wide margin for improvement. The subject was recently discussed very thoroughly, after investigation by a committee, at a "good roads" convention in North Carolina, where the system of convict labor on the roads has been in operation for some little time. According to a report presented here the convict made roads in that State were examined and found to be as level and well surfaced as most town streets. The cost of labor per convict was 21 cents per day, including board, clothing, shelter, medical attendance and pay of guards. The actual cost of 50 convicts working 30 days on the roads was \$315 · while at ordinary rates for free later-not always easy to obtainthis work would have cost at least The convicts are also said to have performed 25 per cent, more work in the same time than the ordinary workingman of that section would have accomplished. It would seem that this method of utilizing the energies of criminals might with advantage be adopted more largely than is now the case.

#### Special Tools and Dull Times,

A peculiarity of dull times, with their resulting sharp competition, low prices and meager demand, has always been the fostering of special machines and appliances of every description. At such periods there is a vigorous eall for tools that will produce more of a certain article; that will do the work better, and that will require less attendance. This is true even though, as now, wages have been reduced to a low level and the price of raw materials has struck bottom. In modern times there is, of course, a constant cry for special tools, but there is an uncommon impetus given to this demand during a period of stagnation. When the demand for any product is in excess of the output, and prices are such as to yield the maker a handsome profit, then it is only the progressive and aggressive manufacturer who thinks of the advisability of perfecting his equipment by the introduction of special machinery designed to do his particular work. Those builders who follow in the rut, taking no thought of useful to the State and at least cover | the changes to be wrought by the |

they are. The result is that when prices fall and trade nearly vanishes, the progressive man controls the market because of the facilities he possesses. He also has the experience and skill and can cope with reverses. His neighbor has two courses open to him: to perfect and bring his plant up to standard, or to attempt to meet the reduced prices by the use of inferior material or cheap and unskilled labor. He has not time, and perhaps not money enough, to accomplish the former, and therefore he, of necessity, has recourse to the latter. During periods like this the shop and business methods of the progressive man assume the greatest prominence. Invariably the establishments watching for and anxious to obtain special appliances are those in which the best shop methods prevail and where the business department is managed well. The same spirit pervades and animates each branch of the concern, and from an inspection of one of them an accurate estimate can be formed of the composition of any other. A collection of tools in the shop, fit only for the scrap heap, means an aggregation of beings in the office for whom, unfortunately, there is no scrap heap in this world.

The Mentreal (Canada) Gazette announces the formation of a new corporation in that city, whose object is to acquire the control of bankrupt estates, either by purchase or otherwise, and to realize the same in the most profitable manner possible. The Assets Company, which is the name of the concern, have a capital of \$200,000, and propose to hold weekly sales by auction for the disposal of merchandise acquired. It is understood that gooda will only be sold in limited quantities at a time, so that steeks will not be disposed of en bloc to retailers, as at present. The main aim of the company is said to be, however, to prevent the breaking up of the markets by the slaughter of bankrupt stocks. The company will remove all merchandise which they purchase from the premises of the insolvents to their warehouse, where it will be put in salable shape and disposed of in lots, so that no dealer will possessed of an estate to the injury of his neighbor. The operations of the company will be watched with great interest, and if the enterprise proves successful, it may be followed by the establishment of similar concerns in other cities of the United States and Canada.

According to Government returns recently published, the total imports into Japan in 1893 amounted in value to \$88.257,171, or \$17,000,000 in excess of 1892 The exports for 1893 were \$89,-712,864, a falling off of \$1,389,890 from the previous year, and showing an excesa of exports over imports of \$1,455,-693. The principal exports were silk,

# THE LETTER BOX.

#### An Appreciative Reader.

From T. II., Walker, Iowa.-I want to say that I think I appreciate The Metal Worker as much as any subscriber you have, for the following reasons: When a young man I embarked in the hardware business with a partner, and the result was a failure within two years, leaving us with \$2000 less than nothing. My partner skipped the country and I have uever seen him since. I commenced over again without any capital except my brain and muscle. assumed the debt of \$2000, paid it, and now have a business of my own, with a capital of \$7000. I compromised on none of the debt, but paid the whole account in full. Now, I'll tell you how I did it. I subscribed for The Metal Worker first; then I bought a set of tinners' tools, and after perusing the pages of the paper I commenced. From it I gained my instruction, or, rather, learned my trade and did my own work of all kinds. I saw some dark days while educating myself in that way, but was persistent and finally won. I not only followed the trade for 16 years or over, but have taken four apprentices in that time, who, after serving for three years with me, are holding jobs in first-class shops at from \$50 to \$90 per month. I would say, further, that I never worked a minute in my life under any other instructor than that above mentioned, and never had a job in the line of tinsmiths' work that I could not turn out in a satisfactory manner. have had five competitors in the hardware line during this time, some of whom gave me three months to sell out to them or go to the wall (for they were big concerns). They are all things of the past now, and I have a larger business than ever. So you see I have reason to thank The Metal Worker, which I do, hoping it may prosper and be published "as long as wood grows or water runs."

I notice quite a number of inquiries as to the best way to lay a flat seam roof. Some ask if 3 pounds of solder is enough for a box of 20 x 28 tin. My experience is, square your tin, make a j-inch lock, nail it, lay without cleats, put on from 6 to 7 pounds of solder to the square, and you will have a roof of which the seam is the best part, and if laid on the right kind of lumber for foundation the roof, with proper painting, will last a lifetime, providing the owner dies when he ought to.

#### A Thanksgiving Window.

From Husband, Nebraska.—My wife, who is very much interested in my business has talked to me for some time about having a Thanksglving window. When The Metal Worker came last week and we read the article on "A Cooking Carnival," she said that we must give a description of our project which will materialize on November 1. My store has a double front with plate glass windows which are about 6 feet wide and 4 feet deep from front to back. It is our intention to pull the curtains

down on this window for the first three days of the week in order that we may trim the window and at the same time excite the curiosity of our citizens. We have written out a bill of fare such as would be found on a table of our New England ancestors after church on Thanksgiving day. This will be pasted on the window on one side. On the opposite aide of the window we have written a list of all the articles that appear in the window with the prices at which they are sold. Of course the central figure in the window is one of the ranges on which I make a special run and which has been very satisfactory in my neighborhood, and over it a sign "Thankagiving necessities." To the range is attached a neat label bear-ing the words "One of the Finest." The oven door of the range is open and in the oven is a patent roaster bearing the label "He's in it" and a picture of a fine turkey cock and the words "Taken from life." As the roaster does not quite fill the oven, sweet potatoes rest on the bettom alongside. On top of the atove, which has six holes, is an aluminum tea kettle marked 'Very light and easy to handle." side it is a steam cooker with three compartments labeled "Potatoes," "Turnips" and "Rice." Beside this is an agate boiler labeled "Plum Pudding," as well as a copper stock pot labeled "Bean Soup." A small sauce pan is labeled "Cranberries." I have fitted up shelves at one side of the window and on these shelves I intend to arrange mince pie, pumpkin pie, apple pie with two crusts, and apple and cranberry tarts, all labeled and supposed to have just come out of the oven previous to the roasting of the turkey. On the shelves are arranged drip pans such as we use for baking bread, with the bread in them, and deep tin pans, one to contain a fruit cake, and a deep stamped ateel apider hanging on the wall beside a pan of doughnuts which have been fried in it. Beside these are milk pans, pudding pans, egg beaters, potato mashers, alaw cutters, gravy atrainers, basting spoons, flesh forks, vegetable knives, flour sifter and spice box, and as the window is being trimmed it is quite probable that a number of other things that would be useful in the kitchen will be selected from the stock. On the floor besids the stove is a galvanized iron coal hod full of coal, with a fire shovel, a pair of clinker tongs and a cold handled poker. At the other side of the stove is a tin dipper and a tin water pail with a dish pan and a wire dish washer. Immedi ately behind the atove is a broom, dust brush and dust psn and an ash sifter. On the cast iron warming shelf on the top of the range are two supports on which set a tea and coffee pot, and on the shelf proper are dishes warming for From the top of the shelf the dinner. the stove pipe is run over and con-nected to the wall at one side of the window. My wife being a famous cook I have had printed receipts for preparing and cooking all the articles that are included in our bill of fare, and these are pasted on all the utensils used in preparing them. If my venture is suc-

cessful this year I intend to make November 1 hereafter a day for an annual display of goods in my atove department, as at this season a good many buyers have bought from necessity and others can only be induced to buy by special attractions. In order to get my store in shape to entertain visitors I realize that I shall have to do some night work, for I want the store and the stock to look well. I intend to distribute through the town small pieces of brown paper which have been torn, rather than cut, bearing this inscription: "You are invited to inspect a Thanksgiving factory," and with my address in one corner.

# How Can Hot Water be Supplied.

From R. J. C., Harrisburg, Pa.-One of my customers finished a house last spring which is all plumbed for hot and cold water except the range, water back and boiler. Stop cocks were put on the ends of the pipes where necessary, and as money was scarce he concluded to wait till fall to put in the water heating apparatus. All summer the cooking has been done by two two-burner gas hot plates, using an oven on one for baking, and water was heated on the other for household use, but more hot water will be needed this winter. As the kitchen was so located that it could be readily heated from the hot air furnace, a pipe has been run from the furnace for that purpose. It has now been decided to do without a coal range and cook with gas, so there will be no water back to heat a boiler if I put one in. I would like to get suggestions from the readers of The Metal Worker for supplying hot water.

Note. - We shall be glad to have our readers make suggestions and describe their experiments under similar conditions. In the mean time some information that may be useful will be found in The Metal Worker, August 4 and September 1. Some of the following methods may answer the requirements: A hot air furnace being in use a small pipe coil might be placed in it, but as there would be no fire in the furnace in aummer some objection might be found to this method. As gas is the fuel used, one of the many gas water heaters on the market that are designed to be a substitute for a water back might be used in connection with a boiler. The burner, however, accomplishes no other work than heating the water, and if run continually the cost of heating the water assumes considerable proportions. If only lighted when hot water is desired objection may be raised against the delay of 45 minutes to one hour that is necessary to heat a 30-gallon boiler, though some hot water may be had sooner. Some gas ranges have a water back heated by an independent burner, to which the above remarks are likewise

applicable; others are made with the water back arranged to be heated by the cooking burners, so that as often and as long as cooking is being done water is being heated. Another method of supplying water would be to use one of the quick heating devices of sheet metal These heat water in a construction. satisfactory quantity, as fast as it runs through them, to a sufficiently high temperature within a minute or two after the burner is lighted, one of their objects being to burn no more gas than is needed to heat the water required. They are made so that the gas is turned on and off by the same movement that turns the water on and off, in order to prevent any unnecessary consumption of fuel. Some of these, though, made of light sheet metal, will stand only a light pressure, probably up to 5 pounds, consequently a water pressure regulator would be necessary. Some reduction in pressure would be effected by setting the apparatus near the ceiling, and hot water would go up to the bathroom when the burner was running and the faucets were opened, and no difficulty would be experienced in getting hot water in the kitchen. By arranging a amall pilot light to burn continually it would be a mere matter of detail to arrange chains or levers to turn the water and gas on and off either from the bathroom or kitchen. Such an apparatus would probably cost no more than an ordinary boiler and its attachments.

#### A Hydrostatic Question.

From J. B., Fitchburg. Mass.—Please inform me through the columns of The Metal Worker what is the difference in the pressure of the water at the lowest points shown in the pipe arrangement in the two accompanying sketches? Also what would be the difference in the pressure between the pressure of an air test and a water test?

Answer. - We have not deemed it necessary to reproduce our correspondent's sketches, for the matter can be handled intelligently without them. The drawings are of a horizontal drain pipe with soil pipes leading to it. One sketch shows a single soil pipe and the other shows three soil pipes. We judge from the figures that the pipes are the same hight in both cases, and if so the answer to our correspondent is that the pressure of water is exactly the same in the two instances. The pressure of water is entirely due to the hight, and practically speaking is not influenced in any way by the number of pipes, the shape of them or the size of them. A single pipe 1 inch in diameter and 50 feet high will give just as great pressure to the square inch of aection at the bottom as a pipe of the same hight and as big round as a barrel. Referring to our correspondent's second inquiry, we cannot answer what would be the difference between the air pressure and the water pressure without knowing more particulars. The water pressure would depend upon the hight of water in the

pipes, amounting to 0.434 pound for every foot of altitude, while the air pressure depends upon the length of time the pump is worked. Perhaps we have misunderstood this last question and if he will explain it more fully we will be glad to give it further consideration in a later issue.

#### A Fish Story.

From Helper, Camden, N. J.-Having read about the ecls in the corporation taps in The Metal Worker, my ideas have become so "squirmy" that I cannot hold them. The nourishment in the water of the two citics where the cels have caused trouble may account for the ability of some of their citizens to scoop millions of "spawndulix," and the disposition of more honorable (?) citizens to either fish or cut bait during long sessions. Our city is somewhat over-shadowed by Wanamakerville, even though a real live "duke" lives in our suburbs, but cur town goes the more famous cities one better in the quality of its water supply. The boiler ln a printing office near my place was blown off one Saturday afternoon, and on Monday the engineer could get no water to fill it again. Having had a similar experience before in the winter, when the supply pipe was frozen, he forgot he was smid August humidity and heat, and said, "The blessed water pipe is frozen again," which made the "devil" of the office laugh when he was immediately sent for me. I found the obstruction in a stop on the main in the street, and on cutting off the pipe on the house side of the stop I found a good sized fish in the stop. The engineer was standing directly in front of the stop, and as I worked it open and shut the fish finally shot out, atriking him in the face, and as he started back he fell over the "devil," who gave a yell, and both were well drenched before I recovered from laughing and thought to shut off the stop. The pipe being clear, I wiped a new joint on the house connection and there has been no trouble since.

## Cleaning Nickel.

From G. L., Glendive, Mont.—Please give me a recipe for cleaning up nickel trimmings such as arc used on stoves.

Answer.—Those who are near a nickel plating establishment prefer to have any badly tarnished stove trimmings renickeled as the only satisfactory method of restoring their polish. There are, however, a number of materials sold for this purpose. A good method is to clean with whiting and a weak solution of ammonia, such as is used in cleaning the silver of the household. After thoroughly cleaning, the parts may be dipped in very hot water and then rubbed with chamois or soft woolen cloth to get the whiting off. The friction and heat leave the parts dry enough to prevent further rusting.

A Grand Rapids syndicate of furniture manufacturers, who recently opened a warehouse and sample room in Manchester, England, are reported to have already captured some heavy contracts, in competition with English firms, from British wholesale concerns, which will

provide a large amount of work in making the goods for the factories at Grand Rapids, Mich., during the approaching winter.

# Important Advances in Freight Rates.

From Chleago comes the information that some advances in freight rates, on articles of iron and steel manufacture, were decided upon at the recent meet ing of the Central Traffic Association held in that city. The advanced rates apply from Pittsburgh and points taking Pittsburgh rates, and are on articles of iron and steel manufacture, which now take fifth class in carload lots and fourth class in less than car-loads. Heretofore Pittsburgh has been on what is known as the 40-60 per cent. basis, or, in other words, freight rates from Pittsburgh to Chicago and other Western points of shipment have been on the basis of 40 per cent. of the through rate from New York, the line making the haul from New York to Pittsburgh getting 60 per cent. of the through rate. At the meeting of the Central Traffic Association above referred to it was decided to put Pittsburgh on a 50 per cent. basis, or in other words, make the same rates apply from Pittsburgh to Chicago as apply from New York to Pittsburgh. new rates from Pittsburgh to all the Western points of shipment have not been agreed upon as yet, but we present below the new rates to a number of the principal points of shipment, as follows:

Rates on Articles of Iron and Steel
Manufacture.

		ess than
Pittsburgh to.	Carloads. o	
		Cents.
Chicago	18 (1716)	21 (20)
Cincinnati	15 (15)	18 (17)
East St. Louis	2216 (22)	26 (25)
Cleveland	10 (9)	13 (13)
Detroit	2216 (22) 10 (9) 15 (14) 13 (14)	18 (16)
Toledo		
In the above columns	s the first	figurea
give the new rates wh	ich becom	e effect-
ive December 1, while	the rates	now in
force are shown in p	arentheses	. The
different lines affected	by the ch	ange in
rates are now at wor	k on the r	iew tar-
iffs and they will prof	oably be re	eady for
distribution to shippe	ra about 1	he 15th
inst		

The Mechanical Engineers Test Bars.—It will interest our readers to know that the 4 tons of test bars made by W. J. Keep for the Committee on Standard Tests are being tested by Prof. R. C. Carpenter of Cornell University and by Prof. C. II. Benjamin of Case School of Applied Sciences. A full chemical analysis of each set of test bars is being made by R. N. Dickman of Cleveland and by Dickman & Mackenzie of Chicago.

The tests of coal carried on at the New York Navy Yard consist in running a marine boiler for 24 consecutive hours with the coal to be tested under as nearly as possible the conditions of actual service. The same boiler is used in all the experiments and the same firemen employed. The rate of combustion is 12 pounds of coal per square foot of grate per hour; all the water evaporated and coal burned is carefully weighed; steam is carried at a uniform pressure; ease or difficulty of firing with the coal under trial noted, as well as the character of the flame, smoke and deposit. In short, a complete record is kept of everything that will enable a just estimate to be formed between the different coals.

### The Flow of Water and Gases Through Long Pipes.

BY G. D. HISCOX, M.E.

The practical conditions controlling the flow of fluids and gases through long pipes are much of the same nature, consisting of the element of pressure, or its equivalent, gravity due to static hight, and the retarding influence of friction. The laws in relation to the flow may be briefly stated as follows:

1. Static hight or head, vertically, is an equivalent of static pressure in terms of their weight in both fluids and gases.

2. The dynamic head is a variable, due to velocity and friction.

3. The loss of velocity due to friction is exactly in proportion to the length of the pipe with equal velocities through-

4. Friction increases nearly as the square of the velocity.

5. Friction decreases with the increase of diameter of the pipe for a given length and velocity.

6. Friction varies with the area of rubbing surface and increases with its roughness.

Friction is independent of pressure with water, but becomes a factor in the friction of air and other elastic gases. Compression increases density in all elastic bodies.

In order to utilize the full flow of water through pipes by gravity or pressure the entering end should be conically enlarged from a distance of ten dismeters to twice the area of the

pipe.

The formula for the flow of the water through long pipes is,  $\sqrt{\frac{a^5 h}{l}} \times 4.71$ 

= volume in cubic feet per minute.  $d^{i} =$ internal diameter raised to its fifth power, or multiplied by itself four times. Thus the fifth power of 2 is 32, of 3, 243, and so on. h = verticalhight in feet, or when pounds pressure is given, multiply the pressure by 2 3 for h. l, length on the line of the pipe in feet. 4.71, a coefficient applicable to the varying relations of the square root of the other terms of the equation.

For example, what will be the flow of a 2-inch pipe 1000 feet long with a

fall of 25 feet? Then 
$$\sqrt{\frac{2^5 \times 25}{1000}}$$
 ×

4.71 = volume in cubic feet per minute. The fifth power of 2 is  $\frac{32 \times 25}{1000}$ =

 $\frac{1000}{1000} = 0.8$ , and  $10.8 = 0.894 \times 4.71$ 

= 4.21 cube feet per minute.

For the velocity, which is the basis for computing loss of head due to friction, and also for loss of head by bends or

elbows, we have volume in cube feet area in square feet

volume × 144 square inches area in square inches locity in feet per minute.

As in the preceding case,  $\frac{4.21 \times 1.14}{3.1416}$ 3.1416

= 192.1 feet per minute, and  $\frac{183}{60}$ 

= 3 2 feet per second.

For a pipe line by gravity the friction loss is involved in the terms of the equation for flow and only requires a change in the diameter of the pipe (d) for an easy approximation to suit the standard sizes of pipe.

For the loss of head or pressure on pumping lines, where an approximate velocity may be known by the action of the pump, the formula  $C imes rac{l}{d} imes rac{ ext{velocity}^2}{5.4}$ = friction head in feet, which divided by 2.3 = the pressure per square inch in the water cylinder of the pump to overcome friction, C being a coeffi-cient that decreases with the velocity of the water, which for 1 foot per second = 0.0317; 2 feet, 0.0266; 3 feet, 0.0244; 4 feet, 0.0231; 5 feet, 0.0221; 6 feet,

0.0215, and proportionately for fractional velocities. For the loss of head due to each elbow,  $\frac{\text{velocity}^2 \times 0.98}{\text{twice gravity}} = \text{loss of head}$  per elbow, 0.98 being a coefficient and

twice gravity = 64.33. For example, as above, to pump 4.21 cubic feet per minute through a 2 inch pipe, 1000 feet long, the expression for friction will be  $0.0241 \times \frac{1000 \text{ ft.}}{2 \text{ in thes}} \times \frac{10.24}{5.4}$ 

= 22.77 feet head, and  $\frac{22.77}{2.3}$  = 9.9

pounds per square inch for friction alone, to which must be added the pressure due to elevation.

Then, if there are six elbows in the line, we have as per equation above for

elbows, 
$$\frac{10.24 \times 0.98}{64.33} \times 6 = 0.986$$
 feet

head, and  $\frac{0.936}{0.2} = 0.4$  pound to add to 2.3

9 9, making the total friction equal to 10.3 pounds per square inch.

Where there are two sizes of pipe in a long line, the velocities and friction

must be computed in detail. The flow of steam, air and other gases through long pipes is retarded under similar conditions in the formulas, as with water; only that steam, air and gases are elastic, and, therefore, their measured volume of flow varies with the density caused by pressure, making a variable measure of friction according to their natural density, together with their acquired density due to compres-

The retardation in velocity in long pipes, due to friction, lessens the initial pressure, and through their elastic nature expands their volume, and in this way makes the problem of transmission much more complicated than with nonelastic fluids.

Thus steam, vapors of all fluids and the gases are subject to the variable conditions due to their elastic properties

and temperatures.

The volume of their flow through pipes and orifices for equal diameters, pressures and temperatures is in inverse ratio of the square roots of their respective densities.

The following general formula for elastic fluids is approximately correct for ordinary use and will apply to the delivery of long pipes for steam, air and gases for the volume of their flow in pounds avoirdupois for a given loss from the initial pressure, with stated lengths and sizes of pipes:

$$87\sqrt{\frac{D(p-p)d^3}{L(1+\frac{36}{d})}}$$
 = weight of an

elastic fluid flowing per minute from a pipe at the point of delivery, the total weight divided by the weight of a cubic foot giving the volume in cubic feet.

D =density or weight of steam, air or gas per cubic foot at the initial pressure by gauge. p = initial pressure; p', final pressure

at end of pipe by gauge.  $d^5$ , fifth power of internal diameter of pipe in inches (d = diameter in)inches).

L = length of pipe in feet.

The other terms are a general expression for friction and expansion along the pipe.

As an illustration of the application of the formula, say for steam at a boiler pressure of 70 pounds and 200 feet of 3-inch pipe, with an assumed loss of 5 pounds pressure at the engine, what will be the volume of steam delivered per minute and its indicated horse power?

We find by the published steam tables in engineers' pocketbooks the density or weight of steam at 70 pounds pressure = 0.198 pound per cubic foot.

The expression then becomes

87 
$$\sqrt{\frac{0.198 \times (70 - 65) \times 3^5}{200 \times (1 + \frac{3.6}{3})}}$$
 Solving,

$$\sqrt{\frac{240.57}{440}} = \sqrt{0.5467} = 0.7395 \times$$

87 = 64.33 pounds of steam per minute, and again by the steam tables the density or weight of steam at the last pressure of 70 - 5 = 65 pounds is 0.187

pound per cubic foot; then 
$$\frac{64.33}{0.187}$$
 =

344 cubic feet of steam delivered per minute at 65 pounds pressure.

The horse-power that may be obtained from the flow of steam under the above conditions varies with the eco-nomical form of the engine, as known by the weight of steam they require per indicated horse power.

The common slide valve engine, using 30 pounds of steam per hour, to the compound condensing engine, using 15 pounds only, will be the range, which, when reduced to the minute unit, will

be, in the first case, 
$$\frac{64}{0.5} = 128$$
 horse-  
power, up to the last case,  $\frac{64}{0.25} = 256$ 

power, up to the last case, 
$$\frac{64}{0.25} = 256$$

horse-power, that may be utilized under the conditions of 70 pounds boiler pressure and 200 feet of 3 inch pipe, with 5 pounds loss of pressure at the engine.

The same formula, when applied to the transmission and volume of air through long pipes, must have the weight of air per cubic foot and at the initial pressure used for D in the formula.

The mean weight of free air at 60° F. is 0.0769 pound per cubic foot which must be multiplied by the increased density due to the initial pressure. This is found by dividing the total pressure, plus the atmospheric pressure, by the atmospheric pressure and multi-plying the quotient by the weight of free air, as above.

For example, if at 60 pounds pressure,  $\frac{60+15}{2} = 5 \text{ volumes in one, and}$  $0.0769 \times 5 = 0.3845$  pound per cubic foot of air at 60 pounds pressure. Then for 1000 feet of 3 inch pipe the expression will be for a loss of 5 pounds press-

ure due to friction:  
87 
$$\sqrt{\frac{0.3845 \times (60 - 55) 3^5}{1000 \times (1 + \frac{3}{3} \frac{6}{3})}}$$
 Solving,

$$\sqrt{\frac{467.16}{2200}} = \sqrt{0} \ 2123 = 0 \ 461 \times 87 =$$

40.1 pounds flow per minute at 55 pounds terminal presssure. As free air weighs 0.0769 pound per cubic foot, or 13 cubic feet per pound, then 40.1  $\times$  13 = 521.3 cubic feet, the delivery of

free air per minute.

For the flow of illuminating and other gases under very low pressure a more simple formula than the above is used to avoid detailed fractional elements, in which the pressure is in inches of water h, density G, referred to the density of air, and the length l in yards. Then  $1000 \ \sqrt{\frac{d^3 \times h}{s}} = \text{open}$ 

yards. Then 1000  $\sqrt{\frac{d^s \times h}{G \times l}}$  = open end delivery in cubic feet per hour. 1000  $\sqrt{\frac{d^s \times h - h'}{G \times l}}$  = delivery with

the difference in initial and final pressure. In ordinary gas distributing serv-

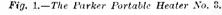
The Parker Portable Heater.

The Charles Parker Company, Meriden, Conn., and 97 Chambers street, New York, are putting on the market the Parker portable heater, as shown in the accompanying engravings. The stove complete consists of an ornamental base of east iron, nickel plated, to which a heavily ensmeled sheet metal cylinder is bolted. This extends slightly more than half around the base and is highly polished on the inner side to make a strong reflector. The top piece is east iron with an opening about the size of an ordinary stove hole, directly over the lamp. This is partially filled in with

ration. The manufacturers refer to the heaters as being an advance in oil heating practice, more like a parlor stove in construction and appearance, simple in construction, powerful for heating, and absolutely free from offensive odors and smoke.

Shipping men in New York aver that imports of goods from other countries to this port have been steadily increasing since the coming into effect of the new tariff and that the movement is general from all parts. The amount of freight sent hither, while not excessively large, is decidedly larger than it was a few months ago. In illustrating this fact, the following figures are given





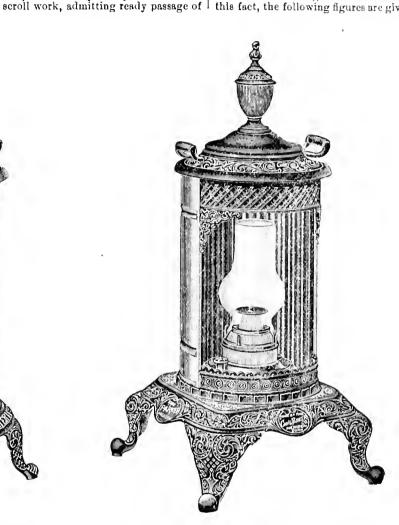


Fig. 2.—The Parker Portable Heater No. 5.

ice with a pressure from gas holder of 2 inches water and a terminal pressuer of 1 inch at 1000 yards, the delivery of a 3-inch pipe will be for gas at 0.42 (air

1) : 1000  $\sqrt{\frac{d^5 \times (2-1)}{0.42 \times 1000}} = \sqrt{\frac{243}{0.5785}}$ =  $\sqrt{0.5785} = 0.7605 \times 1000 = 760$  cubic feet per hour.

President C. P. Huntington, of the Pacific Mail Steamship Company, says that negotiations are in progress between his company and the antagonistic steamship lines backed by the Panama Railroad Company, which he expects will lead to a peaceful settlement of the present rivalry. It is understood that the Pacific Mail will lease the Atlantic service to the Columbian Steamship Company, and that the Pacific Coast business will be surrendered to the Pacific Mail Line.

heat, forming a rest for culinary utensils and preventing small articles from dropping through to the lamp. When not in use for cooking this is surmounted by a handsome metal ornament in harmony with the general design of the heater. The lamp, which is a Parker Mammoth central draft, rests about 2 inches from the floor, and is held firmly in n cast iron basket which is bolted to the base. This receptacle holds the lamp so that it cannot be upset even when the heater is being moved, as may essily be done by mesns of the handles, one at either side of the top piece. At present this heater is made in three numbers, of which No. 3, the smaller, weighs 30 pounds, stands 37 inches high and has a diameter at base of 14½ inches. This number is nickel finished, while Nos. 4 and 5 are pollshed nickel plated. The No. 4 is a little larger than the No. 3, and has a square base similar to No. 5. Other sizes and styles, we are advised, are in course of prepaby the Journal of Commerce: A certain steamer belonging to a regular line, coming from London, brought on a trip in May last 1416 tons of freight; in July the same ship brought 1451 tons and on her last trip this month she brought 2638 tons. Another ship in the Antwerp trade brought to this port in July 1475 tons of freight and on her last trip this month 1819 tons. Another vessel from Hull brought 550 tons in July and 1600 tons in October. Some of this business in October is accumulative business—that is, freight has been piling up waiting for shipment—but the increase is still noticeable.

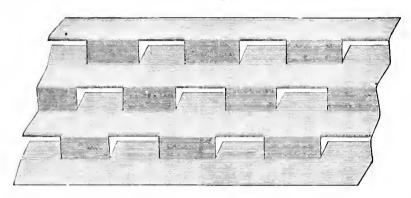
The benefit of ship canals in promoting the commercial prosperity of cities is becoming widely recognized in this country. Pailadelphia, Cincinnatl, Pittsburgh and other commercial centers are actively pushing projects for the construction of such waterways to those cities.

# ROOFING AND CORNICE.

#### American Metallic Lath.

I iThe American Roofing Company, St. Louis, Mo., have placed upon the market a new improved metallic lathing,

The apertures in the face of the sheet being cut below the crown of the corrugation the trowel moves across a smooth surface, there being no sharp edges to cut the plaster from the tool.



American Metallic Lath .- Fig. 1 .- Front View of Lath.

made by special machinery that was built under their direct supervision. They have given the matter much study and have sought to produce a lath that would be rigid, use little mortar and would not cut the mortar from the trowel and so interfere with rapid and economical covering. Fig. 1 shows the front of the lath, while Fig. 2 is the back of it, and shows the way the plaster keys. The lath consists of a sheet of steel having angle corrugations lengthwise to insure the necessary rigid-Apertures are cut in one side of the fold or corrugation and a tongue open on three sides is pressed back, admitting passage of the mortar. This tongue acts as a guard to prevent too large an amount of mortar passing through the aperture and as a guide to force the mortar against the recessed side. In this way, it is pointed out, the line of the plaster is directly from the main body, and is held in place by the tongue and pressed by the workman's trowel against the other angle of the corrugation on the reverse side of the sheet, spreading it out on the reverse side of the apertures in sufficient quantities to key securely without

The workman, in covering, strikes the trowel across in the usual way.

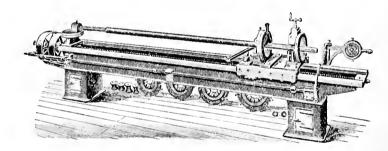
#### Ten-Foot Corrugating and Seaming Machine.

The accompanying illustration shows a 10-foot conductor pipe corrugating

machine. In the operation of this machine the carriage which sustains the corrugating and seaming heads is driven by a screw, which is referred to as making it very powerful and positive. The corrugating and seaming is done in one operation. The mandrels are held in position by a swivel head which allows them to swing forward toward the op-erator, past the grooving head, permitting the pipe to be placed upon the maudrel. Then with one hand the op-erator returns the mandrel to the center of the head and with the other pushes the lever that engages the clutch in the driving pulley, which starts the carriage with its grooving heads on the forward motion. When the carriage has reached the end of the machine it automatically reverses and, by a stripping device, discharges the finished pipe from the man-drel during the return of the carriage, when it stops by a self-acting device. The machine, which is 16 feet 6 inches in length, requires but one man to operate it.

#### FLASHINGS.

N. & G. TAYLOR COMPANY, Philadelphia, are offering to the trade what they call roofing tin in rolls. These are referred to as sheets of tin



Ten-Foot Corrugating and Seaming Machine.

and seaming machine, manufactured by the Poorman Mfg. Company, Canton, Ohio. It is described as of an entirely

new design, not built for a cheap machine, but for long service and heavy

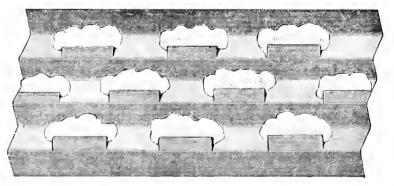


Fig. 2.—Back View of Lath.

The corrugations are only deep enough to stiffen the sheet and to hold the depressed tongue so it does not take a large amount of plaster to fill the corrugations or cover their crowns before facing the plastered side of the room. | for corrugated pipe are a part of the |

and rapid work. It is furnished with mandrels and heads for making plain and corrugated pipe from 2 to 6 inches, inclusive, and 10 feet 6 inches long. Five mandrels for plain pipe and five

thoroughly soldered and painted on one side, ready to put on the roof. They are made in widths of 10, 14, 20 and 28 are made in widths of 10, 14, 20 and 25 inches, 100 square feet in a roll, of IC and IX thickness, and can be furnished in any quality that may be desired, from the Old Style brand of heavy coated roofing tin down to the cheapest grade. The rolls are referred to as particularly desirable for dealers who keep no tin man, or work at a distance, as the tin is ready for use at a moment's notice. The rolls are in straight lengths and require no resquaring. The seams are said to be well soldered by hand.

THE NEW YORK METAL CEILING Company, New York, bid \$1895 and secured the contract for the metal ceilings for the new school at Paterson, N. J.

C. W. CLARK of Bridgeport, Conn., has the contract for roofing the addi-tion to the factory of the Salts' Textlle Mfg. Company.

J. O. LARY & Co., Norwich, Conn., have taken the contract for roofing a building for the Flint Granite Com-pany. They are also putting a roof on a structure for the W. II. Page Boiler Company.

# STEAM AND HOT WATER.

The Steam and Hot Water Trade.

A joint meeting of the Executive Committeee and Advisory Council of the Master Steam and Hot Water Fitters' Association of the United States was held in New York, September 20, and to dispose of the trouble arising from unsatisfactory protection to their members a series of resolutions known as the "trade resolutions" were passed. On the same day the manufacturers of heating boilers, who had held meetings, as noticed in The Metal Worker, to form an association, met at the Hotel Imperial and effected an organization. A delegation from this latter association composed of Geo. E. Downe, F. A. Herendeen, C. B. Boynton, J. C. Blackmore and John K. Allen, the secretary, waited upon the joint committee, asking a conference with a view associations. The following reply was made to the delegation by the joint committee: "To be in harmony with this association we suggest that members of your association do not sell their wares to any person or firm other than a master steam fitter regularly in business, having a properly equipped shop and engaged in construction work. We also suggest that your members do not make plans and specifications for any person whatsoever." Circular letters conveying this information are being sent out from the headquarters of the Master Steam and Hot Water Fitters' Association, Cable Building, Broad way and Houston street, New York. Both the "trade resolutions," which went into effect Ontober 15, and the communication to the boiler mak-ers have attracted wide attention. Copies of the "trade resolutions" have been sent to all manufacturers of goods used by steam fitters with a blank and circular letter asking the manufacturers to use the blank to signify their feeling toward the "trade resolutions." A list of the manufacturers in accord with the resolutions has been prepared and the additions to the list are mailed weekly to the members.

#### HEATING NOTES.

The catalogue of the Economy combination heaters and warm air furnaces manufactured by the J. F. Pease Furnace Company, Toronto, Ontario, is at hand. The pamphlet opens with an account of the warm air and combination system of heating. It also treated the Pease apparatus, the illustrations presenting broken and general views of the combination boilers and furnaces. These cuts of the heaters are scattered through the pamphlet and are alternated with pictures of prominent buildings in Canada warmed by the Pease apparatus. In connection with the buildings there are also letters from prominent Canadians who speak in high terms of the efficiency of these heaters. Altogether it is an exceptionally tasteful pamphlet and is worthy of the well-known concern who issue it.

THE 1895 illustrated catalogue and [ price list of the Lunkenheimer Company, Cincinnati, Ohio, is a handsome publication describing an extensive line of steam specialties. The volume, of steam specialties. which is bound in red cardboard, opens with a full description of the Lunken gate valve, of which many illustrations are shown, so that its entire construcare shown, so that its entire construc-tion may be comprehended. Full lists of sizes, weights and prices are given. This specialty is followed by an ex-tended assortment of check, globe, angle, radiator, gate, throttle, pop-safety and other valves. Steam whistles, meter cocks, water gauges, fusible plugs, water columns, gate cocks, lubricators, &c., follow. Injectors, oil feeders, grease cups, oil cups and shaft oilers of various sorts are illustrated and described, and at the close attention. tion is given to loose pulleys and valve wheels. The book is got up with exceptional neatness and is indexed. In the introductory note the statement is made that all the steam goods of this concern are made according to the United States Government standard of steam composition. A smaller pamphlet issued by the same concern shows, in a little compass, a number of the goods illustrated in the larger cata-

THE SPRINGFIELD COIL BOILER COMPANY, Springfield, Mass., have established agencies for their boilers with the following firms in the State of Connecticut: Andrews & Creedon, Hartford; Curtiss & Pierpont, New Haven; John Kesrns, Bridgeport; Monaher & Breed, Norwich. Also with the Pawtucket Steam & Gss Pipe Company, Pawtucket, and the Capital Heating Company, Providence, R. I. The company are turning out boilers rapidly, and have recently shipped boilers to Allston, North Andover, Palmer, Barre, Westfield, Holyoke, Greenfield and North Adams, Mass. Two boilers were recently put in a church at Wellsboro, Ps.

THE WARREN WOODWORK COMPANY will shortly begin the work of laying steam pipes through some of the streets of Washington, N. Y., for heating purposes.

W. A. Russell, 89 Center street, New York, reports great difficulty in keeping a stock of the Quick Closing steam and hot water valves made by the Detroit Lubricator Company of Detroit, Mich., his trade in these goods having exceeded his expectations. He reports a very satisfactory business in the Niagara radiators made by the Niagara Radiator Company of Buffalo, N. Y.

J. R. Morrison & Co., 51 Charleston street, Boston, Mass., are making a specialty of the steam and hot water goods of the J. H. McLain Mfg. Company, having closed an arrangement with J. H. Coleman, Jr., during his recent New England trip for a line of the Humber, Cambridge, Sandow and Yale boilers.

SOMETHING OF A NOVELTY in the heating line was seen in front of the Nason Mfg. Company's office at 71

Beekman street, New York, this week, one of their radiators made of brass pipe, attracting no little attention.

The Kennedy Valve Mfg. Company of 52 Cliff street, New York, will after November 1 occupy their new quarters at 75 John street, and will there keep a stock of all sizes of their gate, globe, angle, radiator, swinging eheck and indicator valves, indicator posts, hydrants, &c. They will then be in position to ship all orders, even in the larger sizes of gate valves, immediately upon receipt.

#### A Wonderful Record.

The annual report of Geo. W. Melville, chief of the Bureau of Steam Engineering, U. S. N., contains the following statement, which bears evidence of the truly wonderful work done by this department:

In all its designs for machinery, whether for a tug, a battle ship or cruiser, the bureau has, in spite of much adverse criticism, insisted on a fair proportion of weight for power, especially in the boilers; as a consequence the department has been spared the annoyance of failures on trial trips; and, without exception, all machinery built from its designs has done all, and more than all, that was required of it on the first trial, and without distress, accident or injury of any kind. Such a record is unique, and, when the high powers and unprecedented speeds of some of the vessels are considered, it is one to be justly proud of.

In the opinion of the buresu, much of this success is due to its uniform practice of allowing ample power for the speed required with a given displacement, as determined from the carefully observed performances of similar vessels, and to having every design, before final adoption, carefully scrutinized by an engineer officer who has performed service at sea in charge of machinery, this being the only way in which much of the information absolutely essential to the successful designing engineer can be obtained.

English advices intimate that the final liquidation of the great Baring estate will shortly take place. The liabilities, which were originally over \$100,000,000, have been reduced to a little over \$12,000,000. It is expected that a large surplus will be secured ultimately.

It is announced that Mrs. Cleveland, wife of the President of the United States, has consented to name the new Atlantic liner "St. Louis." The exercises attending the launch of the vessel from Cramp's shippard, Philadelphia, will take place November 9.

The statistician of the Department of Agriculture, after an investigation of several months' duration, estimates the acreage of cotton planted in the United States in 1893 at 19,525,000, and the number of bales harvested at 7,493,000.

# HEATING DO PLUMBING.

#### NEW WORK AND CONTRACTS.

FAY & SCOTT, Dexter, Maine, are doing considerable work in the line of putting in steam heating apparatus. They have recently made contracts to fit Henry Hudson's residence in Guilford, the Town Hall at Pittsfield, the Court House at Dover and the Memorial Building.

THE BUILDING COMMITTEE of the School Board of Newport, Vt., are examining heating plants with a view to adopting some system for their new school.

GOULD & NOWLEN, Bath, N. Y., are putting in the steam fixtures in the Hammondsport Herald office.

Perriman & Simpson, Middletown, N. Y., the plumbers, have just finished putting steam heat in the Wallkill House.

A. A. McLauohlin, Worceater, Mass., has secured the contracts for the plumbing in several schools. The Dartmouth Street School at \$1186; the Upsala Street School at \$846; the Ward Street School at \$737.

SECRETARY JAMES T. McNaB of the Paterson, N. J, Master Plumbers' Association bid \$3800 and accured the contract for the steam heating plant in the new No. 1 School Building, and Nealon & Farnon secured the plumbing, gas fitting and tinning contract at \$2820.

THE HEATING COMMITTEE of the Board of Education of Newark, N. J., awarded contracts to the Edward Dunn Company for the heating of the Waverly Avenue, Elizabeth Avenue and Charlton Street Schools. The direct ateam system will be used and the cost will be: Waverly Avenue, \$2100; Charlton Street, \$1647, and Edzabeth Avenue, \$635

GEORGE TREFETHEN, CHARLES DON-NELY AND NED BAWLEY OF PORTSMOUTH, N. H., are putting a steam heating apparatus into Benjamin Lowell's house in Saco, Maine.

BABN, WITHAM & KELLEY, Bangor, Maine, will fit the Bangor Hospital with steam heating apparatus.

Howe Brothers, Canton, N. Y., are fitting the Curtis House out with a system of hot water pipes and furnaces for warming the hotel. George Main is in charge of the work.

STEVENS, STEWART & SAVAGE, Passadens, Cal., have secured the contract for the steam heating and ventilation of the new insane asylum at Highlands.

THE BOILERS for heating the new Masonic block, at Mason City, Ind., have been ordered by S. C. Blake.

Broul & Appell, Sandusky, Ohio, received the contract for the plumbing work for the Middle Bass Club House, also the contract for placing hot water heaters in the residence of Louis Biehl and Carl Neilsen.

HEEBNER & Sons, Lonsdale, Pa., have received the contract for putting in a large steam heater in the newly erected church, Bucka County.

JOSEPH LONGINUS, Pottsville, Pa., bid \$1139 and secured the contract for the steam heating plant for the County Alms House.

CLERKIN & McDonald, New Haven, Conn., are putting in two Gurney hot

water heaters in II. E Franklin's two-family house on Howard avenue. They are putting in a Volunteer steam heater at G. W. Audrewa' residence and have the plumbing on two new houses for John Lowe. They have also been awarded the contract for the plumbing in A. McGinty's aix apartment block and Mrs. Sheridan's new house.

THE ARNOLD COMPANY, New Haven, Conu., have taken the contract for the plumbing and heating of F. E. Hill'a new house. They also have the plumbing and hot air heating of Chas. H. Hamilton's house and John Carr's new house and for new open work plumbing in J. P. Hopson's house.

THE WATROUS HOUSE, on Elm atreet, West Haven, Conn., which was recently sold to a New Haven man, has been thoroughly overhauled and is now a first-class residence. A. B. Wilkinson put in new plumbing and the Foskett & Bishop Company a hot water heater.

A. B. WILKINSON, West Haven, Conn., has contracts on hand for the plumbing and tinning of three houses for Humphrey Bros., the hot air heating of Don Thompson's house, the heating of Michael Larsen's house, the plumbing of the Ellis house on Main street, and the plumbing in L. H. Warner's new house.

EDW. LYNCH, Bridgeport, Conn., has the contract for the plumbing in the new residences of Richard Irwin, H. S. Pearson, Mrs. J. S. Phalen and Chas. N. Ruggles. He is putting in a Gurney heater in one house, a Mahoney heater in another and a Furman, Jr., in his own residence.

DONAHUE & BERTILSON, Bridgeport, Conn., have the plumbing, tinning and gas fitting on four new houses for Warren H. Lamson, one for W. F. Randall, one for C. F. Noren and three houses for Jas. McGee.

L. H. Toucey, Waterbury, Conn., has just finished roofing a house for the Waterbury Clock Company, he has the plumbing of two houses for F. B. Rice, the renovating of the plumbing of B. I. Hotchkiss' house, overhauling the plumbing of Ralph N. Blakeslee's house and is just finishing the plumbing of a double house for the estate of Alexander Mintie.

C. U. NEUMANN, New Haven, Conn., has just finished putting a modern plumbing system in Harry F. Ackrell's house in West Haven, and is putting plumbing and a hot water heater in G. W. Hoggan's new house on Ellaworth avenue. He has also taken the contract for the plumbing and hot air furnace in Wm. H. Bartlett's house.

THE BUILDING COMMITTEE of the School Board of Worcester, Mass., have awarded the contract for heating the Ward Street School to the Fuller & Warren Warming and Ventilating Company of Boston at \$1900.

CHARLES II. AISTHORPE, East Norwalk, Conn., is placing the steam heating apparatus in the new drying shed, which was erected in the rear of the Randall mill.

THE WALCOTT-HURLBUT COMPANY, 175-177 Lake atreet, Chicago, have received an order for two siphon eduction closet ranges of aix and nine sections respectively, to be placed in a school building at Detroit, Mich.

THE THEO. JACOBS COMPANY, 72-74 Market street, Chicago, have the contract for hot water heating in the residence of B. Eckhardt, Ashland avenue.

Flanders & Zimmerman are the architects.

THE SMITH & ANTHONY COMPANY, 219 Lake atreet, Chicago, are to place a Hub warm air furnace in the building of E. Valles & Co., Michigan avenue and Randolph atreet.

THE STANDARD RADIATOR COM-PANY, 167-169 Lake street, Chicago, are to furnish radiators of their manufacture for the Safety Building, State and Van Buren atreets.

KEHM BROS. & MERTZ, 289 E. Kinzie atreet, Chicago, are to furnish a ateam heating plant for St. Anthony's Church, Twenty-fourth place and Canal street.

J. S. FARRELL & Co., Indianapolis, Ind., have the contract for steam heating in the seven-story apartment building of Gen. Lew Wallace, using two of the United States Heater Company's No. 411 "Hecla" boilers.

GEORGE M. Ellis, Norwalk, Conn., has installed 53 heating plants in the past 14 months. He is now engaged in installing Volunteer heaters in the office building of the Norwalk & New York Transportation Company and in the residence of Dr. Main, at Stonington, Conn. He has contracts for installing heating plants in the residences of A. Moran, C. R. Gallop, Mrs. Trowbridge, and an All Right hot water boiler for Mr. Dawley.

R. W. Meios of New Haven, Conn., is about to erect a new residence which will have a modern system of plumbing, for which Peck Brothers & Co.'s fixtures will be used throughout and a system of hot water heating for which a Perfect hoiler has been specified.

W. H. Conning of Bridgeport, Conn., has the contract for the plumbing in a two-family house that is being erected by Z. V. Hewitt.

FERRIS BROTHERS, South Manchester, Conn., are using the Richmond hot air furnace for heating two cottages that are being erected for Mrs. William H. Cheney.

J. D. Kane, Joplin, Mo., is putting in the heating apparatus at the new school building recently erected at Neosho.

THE BOARD OF WORKS Of Oakland, Cal., have accepted the sysem of closets put in by Dalziel & Moller of that city.

GODFREY & ALLEN, Old Town, Maine, have the contract for fitting the residences of C. W. Mullen and M. L. Jordan for hot water heating.

BENJAMIN F. VAY, Rochester, N. Y., has completed the installation of a No. 132 Fox furnace in the St. Peter's Church of that city.

J. R. Morrison & Company, 51 Charleston street, Boston, Mass., are installing a hot water heating plant in the residence of Dr. Leslie, at Ameabury, using a Humber boiler.

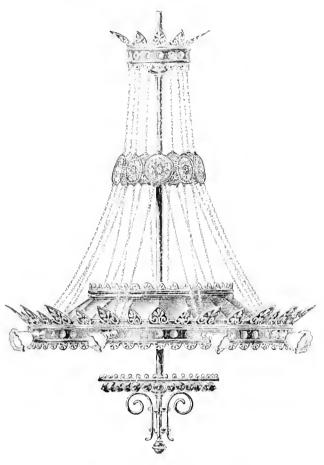
THE IDANO PLUMBING & HEATING COMPANY, Boise, Idaho, have the contract for installing a hot water heating plant in the Catholic Hospital in that city. They will use a Kewanee horizontal boiler and Perfection direct-indirect radiators.

L. W. Roninson has awarded the contract for the heating of the new First National Bank Building, at New Haven, Conn., to the New Haven Heating & Plumbing Company, and the plumbing to Joseph H. Buckley.

#### Combination Chandelier and Reflector.

New Style 50-Inch Power Square Shear.

The accompanying picture shows a We show in the accompanying illusnew combination gas and electric chantration a machine just put on the



Combination Chandelier and Reflector.

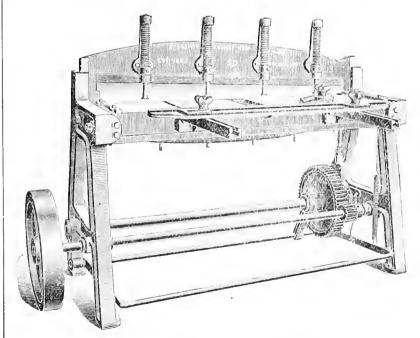
deller and reflector, designed by I. P. Frink, 551 Pearl street, New York, for St. Peter's Lutheran Church, at Berlin, Ont. The chandelier has a large illuminating capacity, the reflector being 72 inches in diameter, and when suspended from the ceiling hangs down about 12 feet. When gas is used for lighting, 48 gas jets are arranged beneath the reflector, which is designed to reflect a brilliant light over the entire audience room. The electric lights are arranged on two circuits, nine lights being placed around the outer edge of the reflector, so that when desired they can be used in connection with the gas for lighting. Under the reflector there are 40 electric lights on a different circuit; so that either may be used and lighted independently of the other. The reflector is constructed on the same principle and of the same materials that have established a reputation for these goods. The fixture shown represents the advancing tendency in these goods, for with the use of electric lights it has been necessary to arrange the reflectors so that both gas and electricity can be used. In ornamentation, the space around the edge of the reflector may be finished in colors and designs similar to those used in ornamenting the church, or decorated with sheet metal designs, as shown in the illustration. The sheet metal is finished in either polished brass or differently colored bronzes, as is preferred. It is claimed that the efficiency of the reflector enables a much more powerful light to be shed than when the same number of burners or electric lights are used without a reflector.

market by Jacob Brombacher's Sons, 30 Cliff street, New York, which they refer to as their new style 50-inch power square shear. It is of the light

connection with the bed, which serves to keep the ways for the cutting bar perfectly in line, thus insuring, it is pointed out, smooth and easy running. The bed has a screw adjustment for stopping the blades, and is arranged so as to lock the bed in position when set, rendering it impossible for it to shift. The clutch is referred to as powerful and not liable to get out of order. The treadle for operating the clutch extends the entire length of the shear, so as to be always convenient for the operator. Four poppets are used for holding down, and these are held by spring pressure, which, we understand, is found very efficient. They adjust themselves automatically to different thicknesses of metal, and avoid the possibility of breakage through faulty adjustment or unevenness of atock. Another advantage alluded to is that the poppets leave the cutting knife clearly in view, so that any mistake in adjustment is readily detected. The fly wheel is 21 inches in diameter with a 3-inch face, and should make form and a 200 and should make from 250 to 300 revolutions per minute. With the machine are furnished a full set of back, front and bevel gauges, also a screw adjustment for the back gauge.

The German Government has forbidden the importation of American

The grant by the British Government of a lease of the tin mines of Lower Burmah to Captain Menzell of Singapore has, it is stated, given a considerable stimulus to the tin mining industry in that district, which has been in a depressed condition for some years. Under the terms of the lease, Captain Menzell has the exclusive right of mining in the Msliwun township of the Mergui district, the only part where tin is known to occur in any considerable quantity—until 1898, except in aress already occupied by native miners; furthermore, if the concession be worked in a satisfactory manner, he will have the option of renewal for a further



New Style Fifty-Inch Pawer Square Shear.

pattern style, is geared four to one, and will cut as heavy as No. 14 iron. The will cut as heavy as No. 14 iron. The side frame and lega are cast in one piece, and there is a tongue and groove

period of 21 years. The concessionsire has already begun operations by importing a large number of Chinese miners from the Straits Settlements.

# Shop System of Keeping Track of Sheet Metal Jobs.

BY ROSS F. RAINEY.

IN CONDUCTING A SHOP IT IS necessary that the workmen be governed by some such conditions as the following: The foreman should have absolute control over all the men in the shop and should exercise judgment as to who are the proper men to work on the several jobs. Some man may be experienced in one line of work and could work to better advantage in that line, while in another line he could not work to as good advantage.

The foreman should distribute his men so as to get the best results, and should not show too much authority over them. It is better to treat them civilly, as they will show more respect and will do better work.

It is not generally best to discharge a man without the consent of the proprietor, but at the same time the foreman should give his men to understand he has that right.

The shop should be thoroughly cleaned once a week.

In a great many shops there is no avstem in regard to keeping the men's tools. The general rule in some shops is that the man who gets to the shop first gets the preference. In our shop, we have a large cabinet containing a large number of drawers, giving each man one drawer, with a key for the same; the keys not passing. The foreman keeps a duplicate key of each, and each man is held responsible for his tools.

#### Diagrams.

The books and slips used in this aystem of keeping track of jobs and shown in this article are as follows:

Fig. 1, bid book.

Fig. 2, written bid to contractors.

Fig. 3A, record book, job entered. Fig. 4, order book, in which all contract and repair jobs are entered when received. The contract jobs are copied from the bid book, Fig. 1.

Fig. 5, dray slip. Fig. 6, charge book. Fig. 7, time check. Fig. 8, credit book.

Fig. 3B, record book, cost of time

Fig. 3C, record book, cost of material delivered to the job, including car

fare, drayage, &c.
Fig. 3D, record book; cost of material returned as unnecessary to complete the job.

Fig. 9, receiving book. Fig. 7A, time check.

Fig. 1A, time check.
Fig. 10, order slip on tin shop.
Books and slips Figs. 1, 2, 3A, 3B, 3C, 3D and 10 are kept by a clerk in the shop office.

Books and slips Figs. 4, 5, 6, 7, 7A, 8 and 9 are kept by the foreman.

#### The System.

In explaining the books and slips enumerated I shall begin at the beginning: A contractor comes to our office and asks us to bid on the tin and gal-

Of June Force roof of both pronches much Scotts Eaten Coxled in using a c for flat coverings and . X for gullers and will to be fut on shouling seam and double locked 14 x 20 tim The to relead over cornice cap, all to be hunted one coarunder. side and two coate outside all conductors to be 4. Enivaringed and as shown on plans much show Conductors from porch roof to connect Funde Termuals and Creating to hop Late Some auchorne on Cland. Man Coof. 14/2 x 19-16/2 x 19-9 x 11-33/4 x 19-119/ G4. Front Corch 8 x 21 192. Back Porch 8 x 13 104. 20. Gutter. 16-18-20-24-6-20 WATO 13-13-13-17-13-13-6 WL IS 4. Galv Loud 26-26-26-26-3 20 9 84 · WL 1. Cap 22 - 6 2 Finals & Termula B' 5 It Cresting i w WF 1, Tim Law Seon Hork for 174 2 List of Birders a of mo mullen James Dornes All bede sent fan "fg"

a O Adame D. F. Redpath

Fig. 1.-Bid Book.

vanized iron work on a certain house. that they can be seen at a cer-We in turn ask him if we can see the plans and specifications. He replies name in this instance being S. M. John-

son). Our representative who attends | ments of all tin and galvanized iron | ments, with a list of the bidders, in the

to that department repairs to the work necessary to complete the job as architect's office to see the plans and per plans and specifications; he also takes price on this job are made the same, and

Drarsin Galvern on the T. O Drivin Mo peopose to put an house complete according to plans and specifications for the sum of One Skundred Seventy Four 100 - Dolla (\$ 17478) We peopose to put on house complete according to plans and specifications for the sum of Dollars. All estimates are contingent upon strikes or unavoidable acci. donts or delays. Very Respectfully , J. C. STEWART & CO., If you are bidding on any work or in need of anything in our line, let us know and we will be pleased to figure on it, and are sure we can save you money

Fig. 2.-Written Bid to Contractors.

J. O. Jun	w House
S. M. Johnson arch	a P. Adama Cout.
Jan 14 all roofs 1 c 14/20. Scotte	
Lutters & Valleye 1x 19/	r
Main Roof	1191 84
Front Porch	192 .
Back -	105
Galv. Coud y.	1487 84.
lap Flack 1.	101.
20 · Gutter	104
10. Valley	88 .
2 Finale	
2 Termuale	
Creating Parts at 16 #	5 .
Contract #	114 18
0 22	
Sharged Page 30	1-9. Och
- Suarged Vage 30	75 Nay Carre

Fig. 3A.-Record Book-Job Entered.

specifications. He takes a copy of the specifications in a memorandum book which he carries, as well as the measure- both the specifications and messure- the building and are ready to work.

All material sent out by the foreman book, Fig. 6,

the following words are used in the cost and extensions: woulds fair. 123456 7890

After the job is written up in the bid book, a written bid, as shown in Fig. 2, is sent to all the bidders. We then have our man keep his eye on the job until it is let to the successful bidder, who we in turn have our representative see, and if we are the lowest bidders on said work or stand in with the contractor, we get the job, which in this case it is taken for granted we did. The contractor represented in my method is A. P. Adams.

We then enter the job in our record book, Fig. 3A, from the bid book, Fig. 1, itemizing only the material and brands specified. At the same time we enter the job complete, precisely as in our bid book, in our foreman's order book, Fig. 4, so that he will know what kind of material to make up. The tinners then go to work and get the material ready to deliver to the job, and any galvanized iron work is turned over to our galvanized iron workers to get ready. The job is thus entered up in every detail, and material ready to be delivered to the job as soon as the word to go ahead and put on the roof is received.

When the word to go ahead is received, we have the material to be put on first delivered to the job, per dray slip in Fig. 5, also showing the time of delivery, &c. The balance of the ma-terial is delivered when needed. The tinners in the meantime have arrived at

and marked whether contract or repair work, and if repair work, what the charges are. Each evening the time checks, one of which is shown in Fig. 7, which were given to the men in the morning, are marked O. K. by the foreman, who in turn delivers them to the office together with the charge book already referred to and the credit book,

Referring to the printed time check, it will be found that each man keeps the time spent on each job, and the time going and coming is charged up to said job. In repair work all material used on said job is itemized on the time check as well as in the charge book. Nothing but the time on contract jobs is posted from the time checks. The other charges coming from the charge book are kept by the foreman.

book are kept by the foreman.

Each evening the time on contract jobs is posted to the different jobs in the record book to cost of time, Fig. 3B; also all material to cost of material sent out, Fig. 3C, and any credits to cost of materials returned. Fig. 3D

set out, Fig. 3C, and any credits to cost of materials returned, Fig. 3D.

All repair jobs are posted from the foreman's charge book each evening in the regular day book. The receiving book, Fig 9, showing everything coming into the shop, is kept by the foreman.

man.

When jobs are complete the tinner working last on said job is supposed to notify the foreman of the fact, or in some cases it is best for the tinner to note it on his time check, Fig. 7A.

The method of keeping a job as explained in the various departments of the record book I think an excellent.

The method of keeping a job as explained in the various departments of the record book I think an excellent one. A book is used which, when opened out, measures about 22 inches. The left hand page is divided equally in two parts. The original contract and time are kept on the left hand page, and the material sent out, cost of same, car fare, drayage, &c., and the material returned and cost of same are kept on the right hand page, thus showing the condition of the whole job at a glance. The men's time is figured at the several prices, also the cost of material sent out, including car fare, drayage, &c. Adding these together gives the total cost. Subtracting from this amount the material not used gives the net cost. Subtracting this from the original bid gives the net profit according to my method. The job is then charged upon the day book at the original contract price as noted under the contract price, Fig. 3A.

#### Cash Sales.

Referring to the manner in which cash sales are treated, I would say: Our office and shop are 100 feet apart. A person comes into the office and wants a piece of tin, zinc, copper or speaking tube, and wishes to pay for the purchase at the time. We give an order on the tln shop, as shown in Fig. 10. When the goods are furnished the same are charged to the office in charge book, Fig. 6. This is necessary in order to keep a complete record of everything going out of the tin shop.

The estate of the late Thomas S. Clarkson of Potsdam, N. Y., who was an ewner of sandstone quarries, gives \$150,000 with which to establish and maintain a technical school for civil and electrical engineering, mechanical drawing, &c., at Potsdam.

The Sultan of Johore, an East Indian potentate, decorates his shirt front with a miniature electric light instead of a stud.

How I was Cared of a Big Head.

A Salesman's Nurrative.

BY AMBROSE.

When I was in the agricultural supply business two or three years

business, especially about "drumming" the trade. I used to see our traveling men lying around the store, when they ran in to get posted up; noticed they were smoking good cigars, looked sleek and free from sin, but growling occasionally at hard luck, which I imagined was only a bluff to

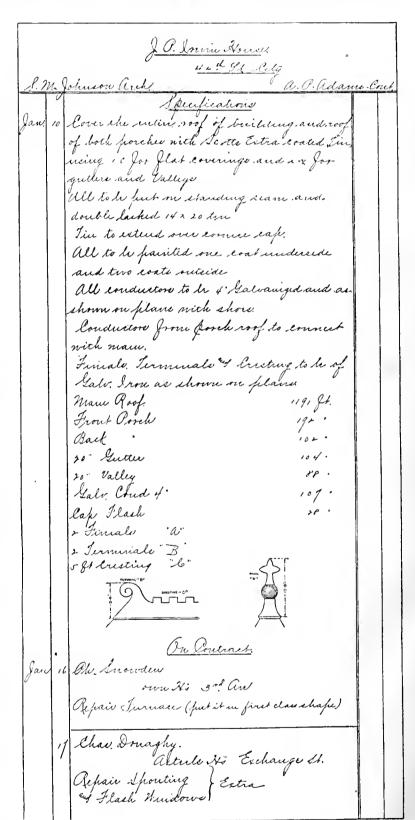


Fig. 4.-Foreman's Order Book.

I knew it all—the proprietor of the business and fellows who had grown gray in the service could give me no pointers. I had the big head. You all know how it is, boys; most of you have been there. I was just at that age when I thought myself "just fit to kill" and knew all branches of the

keep good men like myself off the road. I had visions of rides in palace cars, buggies, steamboats, elegant hotels, customers waiting in the doorway with open arms, all smiles, with orders as large as the circulation of *The Metal Worker*, all ready for you and the house paying all expenses.

#### Young and Fresh.

Well, I pestered the "Boss" hard and persistently to let me go out, but he knew I was too young and fresh to be any good; but I bothered him so much, to get rid of me he planned a nice little soak for me that was a crusher. So one morning he said: "We have decided to put you on the

you." Oh, wasn't I feeling jubilant? I swelled out like a pouter pigeon—told the boys around the store they were "Jays," "Not in it," "N. G.," &c.

#### Short on Hayseed,

I immediately went out and bought a couple of the largest eigars I could, for, of course, I could not be a

you to understand what a "fat" territory I was assigned to. It is one great, flat heap of sand surrounded by salt water, where they live on the side of a hetring all winter. The only vegetation is a few scrubby oak and dwarf pine trees and a coarse, brown sedgy grass which looks like blonde whiskers on the face of Mother Earth. The Old Colony Railroad, with its single line of

RECEIVED OF	Jan 16- 593
J. C. STEWART &	& CO., By Cimmers
in Good Order and on	***************************************
Credit of	
J. P. Irwiw House	
III the St Ector	88 20 - Vallay
Feltshop 100	
Christ bonet 1034	
Delivered by Driver,	Received by James Beair  Sign Your Own Name. Jinner

Fig. 5.-Dray Slip.

road. You are a clever young fellow and should have a chance to spread yourself. Now, where would you like to travel?" "Anywhere," I answered promptly; "I don't care. I can sell goods anywhere." "All right. Fetch me the map of New England. There,"

drummer unless I smoked, so I tried hard to learn and got as sick as a sick horse before night. I ran over the whole stock of goods that week, gave the shipper a hum to look out sharp for my orders and if necessary get p striker; told the stock man to order ua

TIME CHECK.	
Dufan 16	189 3
	189
Name James Byair	•••••
Name of Job, and Material put en.	H. TIME.
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ausing on man ovof	14
The Snowdan ses	
3 20 ave	
Ospaving Turnace	1
, achaanson 10,22 12ols	
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OK. ay	9
adams Forgman	

Fig. 7 .- Time Check.

said he, running his finger around on the skate-like projection of Cape Cod, Mass., "that's a territory that is very little worked in our line. We have nobody covering it. As far as I know, it must be a beautiful agricultural district. You can work it up and have it all to yourself and go there just as often as yon please; so get ready to start Monday morning, and God bless

more saw horses and wheelbarrows and discussed with our seedsman the possibility of getting short on hayseed and cranberry vines. Monday morning, bright and early, I struck out for Provincetown via the small screw steamer "Longfellow," the "seasickest" boat on the coast of North America. Have yon ever been down on the end of the Cape? No. Well, it is impossible for

track and sleepers, looks not unlike some monster reptile creeping thirstily out from civilization over the hot and sandy peninsula, seemingly avoiding the bitter sea water on either side, but crawling on and on expecting to find some fresh and cooling sea in which to slake its iron thirst. It gets as far as Provincetown, curls up on the sand and expires. A few intoxicated poles supporting an aeolian harp of telegraph wires operated by a raw east wind with a fog accompaniment playing "Where Is My Wandering Boy Tonight" and the "Moaning of the Tide" relieve the monotonous landscap". Siberia is thickly populated compared to it,

#### A Crisp \$50 Bill.

I knew no more about it than a dude does of Hawaii. But I digress. As I say, Monday morning bright and early Istruck out, loaded down with samples, including models of horse rakes, mowing machines, wheelbarrows, samples of hayseed, beans, turnips, fertilizers, a well bucket, a broom, a saw horse, two brand new yellow grips filled with linen, stationery, price books, catalognes. &c. 1 had a hair-ont, a clean shave, tenement collar, oil shine on, an extra plug hat (for the jobbing trade) and a crisp \$50 bill in my pocket—everything brand new. I took possession of the whole cabin, and with my numerons traps almost filled up the small saloon.

While I was tracing out my route on a map, which I spread out with a flourish on the table, two or three old-timers were sizing me up, and to my questions about the most expeditious way "to do up the Cape" one of them, in the most innocent way, volunteered information as follows: "You want to do Provincetown this afternoon, then take the horse car down to Truro and Wellfleet; then the electric line to Orleans, Chatham, Harwich through to Hyannis, and from there you can

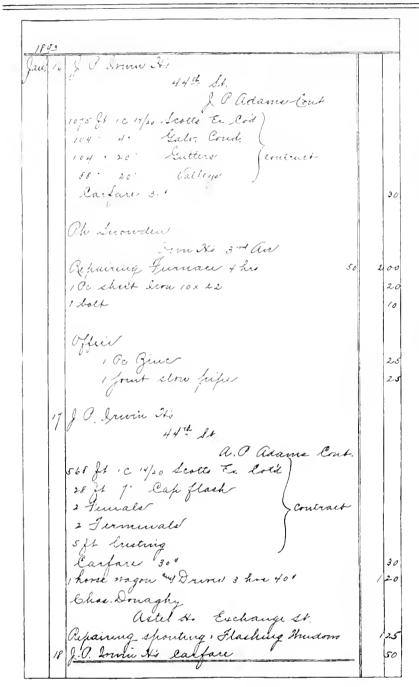


Fig. 6.-Charge Book.

get a train every hour via the "Air Line" to Middleboro. Do you intend stopping at Nantucket? Well, take the Cape Cod ship canal, the canal will get to Nantucket as quick as it gets anywhere." "Ain't that so, Ed?" but "Ed" had rushed up on deck with his fist in his mouth. I heard him explode into convulsions outside.

"Your friend is seasick," I remarked

marked.

"Yes, he wrenches pretty bad when he heaves.

But say, young feller, when you go to Provincetown you want to stop at say, young iener, when you go to Provincetown you want to stop at s. It is the best hotel in town. Excuse me, please. I must look after my friend."

And those two bad drummers had another fit. I was so excited I never tumbled.

#### A Wheel Curry Comb.

Well, the first move I made when we landed was to get dinner. I went to the place recommended by my "friends," paid 50 cents to a man with rings in his ears, who looked like a re-tired pirate, got only a tough clam chowder, stringy lamb, sloppy tea, moldy cake and had my saw horse stolen. I hustled all over that hot, fishy, sandy old town, with its long, narrow, crooked, winding street all the afternoon, without selling a cent's worth. "Do you want any of these to-day?" I asked a storekeeper in a want-some-fish-ma'm voice, at the same time shoving horse rake model under

"What is that," he asked, eying it curiously—" a fish scraper?"
"No. no," I answered; "it's a horse

rake.

"Oh, yes, I see, sort of a wheel enery comb." Great Scott! what a farming community I thought, and got out without another word. Another man, to whom I showed some Red Top grass seed, thought it was good stuff for mattresses.

"Where do I take the horse car for Truro?" I inquired of a slonehy policeman.

man. "Where did you come from,

sonny?"
"From Boston," I answered, with as much dignity as I could assume, with a stable broom and a dung fork under either arm.

"Yer'd oughter brought one wid yer. De woods is full of dem up there." He thought 1 was stringing him and he left me.

#### The Way-Freight Caboose.

There was no passenger train out until 5.30 on the morrow, so I boarded the way-freight caboose without any supper; the conductor was about to make out a freight bill for my traps, but a "J. A." cigar fixed him o. k., and about 11.45 p.m. I crawled off with all my props at Truro, the smallest town in Massachusetts, looking for a hotel and business blocks. Holy Moses of Egypt, what darkness! What desolation! I could not even hear the train when it got out of sight; nothing but lation! I could not even hear the train when it got out of sight; nothing but the moaning sough of the wind and nearby tide. I could hardly see the shiny yellow grip in my hand. I couldn't smell—no, not even the phosphate in my sample case, which hung to me like eau de Colegne all the time; now it too deserted me. I felt as if I was the only thing left on the earth was the only thing left on the earth after a deluge. I was about to make some kind of a move, when suddenly a light crept into the lonesomeness. I hoked toward it and discovered a

a k-oked toward it and discovered a lantern with a man en it.
"Hello, there!" he said. "Has the train come through? That so? Well I've been looking for it."
"Say," said I, "where is the town here?"

here?"
"They ain't no taeown here. What

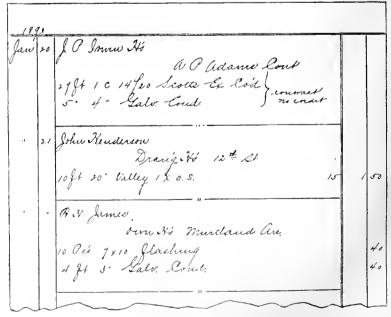


Fig. 8.—Credit Book.

yer pedlin? Washboards? Ain't no store nearer than North Truro, seven miles from here, nor no placeter putup."

I bunked in (or rather out) that first night with him, an entire stranger, under an open freight shed hedged in

pecting to find him, but, alas! he is still out of sight.

#### It Saved My Life.

Talk about "blues" boys, Great Scott! I never want to feel that way

au 16 1095 ft 10 14/20 Scotte	21-1	Dr	PA
109 " 4" - Gali- C.	red a	a	DS
(1) Carfare			30
4/2 ft 10 " Scotts		OR	SR
28. 10 lande	ech:	17	wA
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Earfare			30
1 Horse Hagner Driver 31	cre 400	/	20
104 Jt 20 Gutter	wr.	WZ.	20
88. 20. Valley	vv k.	WW	2
or Enfan			5
0			
Cost of material aird to Bu	elding	121	0

Fig. 2C.-Record Book-Cost of Material Sent Out.

by my traps and flanked by barrels of oil, bundles of rope and a quintal of salt fish, &c., with a Chatham fog around me for a blanket. I was sick, hungry, cold, disgusted, clean skunked and penniless, for I had buried my pocket book in the sand fearing to be robbed and I could not find the hole again. You bet, I thought hard and loug that night. I commenced to tumble. I knew I was getting it in the neck from the boss and the wicked drummer, whom I dreamt I saw, not singing in Paradise, but singeing in the other place, opposite and down a flight.

### Half a Dozen Clam Diggers.

Next morning I took the 5.30 regular passenger train to Wellfleet, another beautiful agricultural town (I didn't in quire for the electric), hired a team for \$4, hustled all over Eastham, Orleans and way stations, and all I sold on the whole trip was one-half dozen Clam Diggers. I sold the Clam Hoes to a man who was digging with a shingle. He was alone. I had him corralled between myself, my samples and the rising tide. I talked so earnestly and almost fiercely on the absolute necessity of his having the best thing in the world to do that kind of work in order to live that he really thought I was off, and as his teeth were chattering with the cold, his basket floating off, the water lapping the basement of his pants, escape was impossible. He cried out, "For God's sake send me half a dozen and let me go!"

I was so rattled at having struck an

I was so rattled at having struck an order that I hunted all through my chattels for an order book without finding one, although I had a dozen

with me.

"What is your address?" I asked after I found the book, but the fellow had disappeared as if into the ground, and, great Cæsar! my nice new yellow grip with all my linen and mileage book went with him. He vanished so mysteriously I really thought I was dreaming. I yelled after him, cnrsed, swore, prayed, kicked up the sand, ex-

hat and my theories exploded. I sneaked in at the back door, threw my traps behind the elevator shaft, and crept up in the loft where the lumpers were piling up fertilizer. Ob, how I did envy them their job. I poured out my tale to a poor old darky and took him into my confidence. I did not want any of the boys to know I got back. I would take consolation from a dog just then. I stayed out of sight like a strange cat in a garret, only showing up at meal times. I did not have the gall to get my wages from the cushier's desk. The conceit was knocked clean out of me. It was the best lesson I ever

learned.
The boss met me in the doorway one evening as 1, was speaking home.

evening as I was sneaking home.
"Hello A——!" said he, "Had a good week! I'll look you over in the morning. Make up your mind where you'll go next week. Lay your orders on my desk."

on my desk."

Well, he could not club me away from there for three years after that, and ever since, when he wants to guy me, sometime when I am hitting him up for a raise, he will turn to page 17 of his memo. (I'll remember that page as long as I live) and read: Provincetown, Trnro, Chatham, Wellfleet, &c., expenses \$24.50; sales, \$1.75—15 dozen Clam Diggers. Then he winks his other eye.

An engineering work of considerable importance, which has been commenced lately, is the piercing of two railroad tunnels through the mountain barrier separating France and Spain. The tunnels, which will each be about 5

w	16 James Blaw	4	25.	1	01
u	Narry Huston	9	" 15	,	3.
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	Oh Jones	9	. 30	2	7
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	counted 3"	3	2.5		1
	Simone	9	15	/	3.
Ì	11 James Blace	8	* 25	2	01
	Narry Kriston	7	. 15	/	J.
	Oh. Jones	9	- 30	2	1
	chas. mitchell	9	25	2	2.
			_		
	. A	east of tir	ne	19	4

Fig. 3B.-Record Book-Cost of Time.

again. I went up to the dock at Wellfleet, intending to jnmp overboard, but the tide was out and while waiting for it to come in the afternoon train for Boston hove in sight; it saved my life. I pulled myself and sample show aboard and landed home with tail feathers all down, able to wear a 614

miles in length, are for the use of two international lines of railway, each having its own separate tunnel. The first of these lines will start from St. Giron in France, having for its objective point the town of Lerida in Spain, while the second will start from Cloron

in the Basses Pyrenees and join the main line from Laragassa to Barcelona. A period of ten years is assigned for the completion of the entire scheme.

Purity of Air in Cars.

Recent tests of the air in sleeping cars, chair cars and ordinary cars, says the Hartford Courant, show that the

atreet, Philadelphia, is very nearly completed. Workmen are busy day and night in giving the finishing touches to the structure, which when complete will be one of the finest railroad stations in the world.

President Cleveland has appointed a board, consisting of Gen. Thos. L. Casey, Chief of Engineers of the Army; Col. W. F. Craighill, in charge of river

ware River, which, in its judgment, should give the greatest facility to commerce and will be best adapted for national defense. The report of the board must be completed in the next four months, as it is to be submitted to Congress at its next session.

#### The Work of the Wreckers.

The World's Columbian Salvage Company are making rapid progress in the work of wrecking the buildings of the late World's Fair at Chicago. The entire southeastern portion of the grounds has now been completely cleared of the numerous structures which stood there, including the Shoe and Leather, Dairy, Anthropological, Sewerage and Sawmill buildings, the Stock Pavilion and the once famous Colonnade. The Forestry Building was removed by other parties. The wrecking of the great Transportation Building has about been completed. The Fisheries and Woman's buildings and the Choral Hall have been leveled. The handsome dome of the Horticultural Building is being carefully taken down, to be re-erected at some point in Ohio. The Government Building is the only large building which has not yet been touched. The Manufactures and Liberal Arts, Electricity, Mines and Mining, Administration, Machinery and Agricultural buildings and the Terminal Station were all burned in the great fire on the grounds, and nothing remains of them but the iron and steel, which ag-

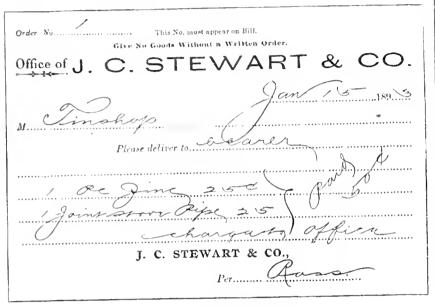


Fig. 10.-Order Slip on Tin Shop.

best air was found in the chair cars, the next best in the ordinary cars, and the worst in the sleeping cars. This is about what any one would expect, but it is worth noting that in each kind of car the air was worse than the lowest standard allowed where intelligent efforts to provide pure air are made. Thus good authorities hold that the carbonic acid in the air should not exceed seven parts in 10,000, three or four being as much as exists in what may be called pure air. In the cars tested the lowest average for the number of observations was 10.7 parts in 10,000, while in the sleeping car the lowest ratio was 11.3 parts, the average 18.0 and the highest 22.0.

There is no good reason why travel-

There is no good reason why travelers should be made to breathe bad air. It is possible, even with the present appliances, to obtain decent ventilation if the supervision of the work is put in competent hands and passengers are not allowed to interfere.

What is greatly needed is a system of ventilation which shall introduce clean air, with a proper quantity of vapor of water, exhaust the foul air, and be so contrived that passengers cannot interfere with it.

There is not much risk in saying that a auitable scheme of ventilation can be had very soon after the railroad companies give the impression that they really want it. The subject has been thoroughly investigated, the requirements are pretty well understood, and there is ingenuity enough in the country to satisfy them in a practical way whenever inventors see a near prospect of reward.

inventors see a near prospect of reward.

To bring the question down to its lowest terms, there will be improvement when the people get tired of what they now endure and demand improvement. Probably the change will not come much before that time.

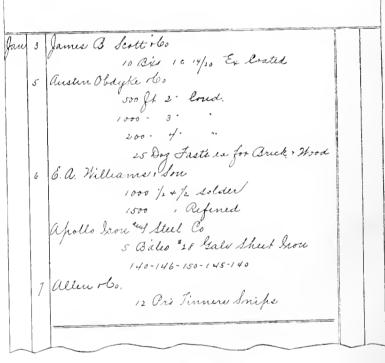


Fig. 9.-Receiving Book.

and harbor works in Maryland and Virginia; Capt. George Dewey, U. S. Navy; Mendes Cohen of Baltimore, expresident of the American Society of Civil Engineers, and J. Alexander Porter, civil engineer, of Savannah, Ga., to select the route of the Chesapeake and Delaware Ship Canal, in compliance with the terms of the last River and Harbor act. The board is instructed to examine and determine, from the aurveys heretofore made under the War Department, the most feasible route for the construction of the waterway to connect Chesapeake Bay and the Dela-

gregates about 25,000 tons, now being sheared and prepared for market. The two Service buildings have been allowed to remain standing, as they are needed by the Salvage Company for office purpose.

The Chief of the Bureau of Statistics, at Washington, reports that the total values of the exports of merchandise from the United States during the month of September, 1894, and during the nine months ended September 30, 1894, as compared with similar exports

The magnificent new terminal station of the Pennsylvania Railroad, at Broad

during the corresponding periods of last year, were as follows:

| 1894. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893. | 1893

formed and will drill a number of wells. The oil has been examined by experts at Indianapolis and pronounced to be of superior quality.

A promoter in California proposes to build an electric railway through the mountains 62 miles to the Yosemite Valley, and by utilizing the water power, furnish electric light and motors for all

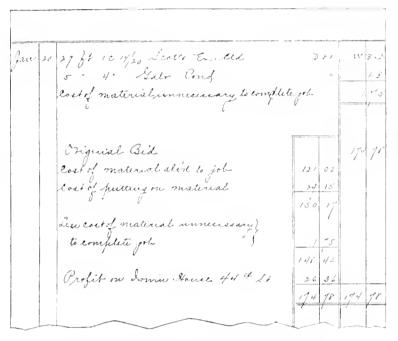


Fig. 3D.-Record Book -Cost of Material Returned.

ports over imports was \$73,517,284, and the excess of imports for the corresponding period of the preceding year was \$22,103,499.

The "Greater New York" acheme is again receiving great attention. A commission has been chosen for the purpose of pushing a bill through the Legislature for the consolidation of New York City with Brooklyn and the districts. The bill has been drawn up and powerful support is promised. The territory of the Greater New York contemplated by the commissioners includes the following cities and counties.

	Square miles.
New York City	38,85
Kings County; Brooklyn. Flatbush. Flatlands. Gravesend. New Utrecht. Jamaica Bay.	5.69 12.79 10.96 7.96
Richmond County: Castleton	6 ±2 16,20 12.71
Westchester County; Part of Eastchester Part of Pelham Westchester	2.83
Queens County: Flushing Part of Hempstead Jamaica Jumaica Bay Long Island City Newtown	

The Citizens' Gas Company of Knightatown, Ind., while drilling for gas recently at that place, atruck an abundant flow of oil at the depth of 1000 feet. A local company has been

is carried to the balloon by one of the three cables that keep it in place, and one lamp illuminates a space large enough to enable a considerable body of men to operate at night almost as easily as in broad daylight.

Garbage Disposat in St. Louis.

The Merz system of garbage disposal, which is satisfactorily operated in the city of St. Louis, Mo., by the St. Louis Sanitary Company, under a ten years' contract, is thus described: The wet garbage is placed in receivers, where it drains. It is then put into steam jacketed dryers, where it is constantly stirred for three hours. Transferred to retorts, it is saturated with naphtlm, which dissolves all the grease, and this is then distilled off. The residue is ground up fiae, placed in packs and sold for fertilizing purposes, bringing \$8 a ton. The grease, which is odorless, is sold also for \$8 a ton to a firm of soapmakers. Like all utilization processes, this has a vile smell, which is complained of by the people living five blocks from the works. The people in Detroit protested so strongly against it that the works were moved out of the city. The St. Louis plant is well out of the city. The city pays the company \$1.80 a ton up to 100 tons, and all over that is treated for nothing. The average amount is 180 tons a day.

A comprehensive investigation into the effect of machinery is labor is now being planned by the Bureau of Labor at Washington. This inquiry was

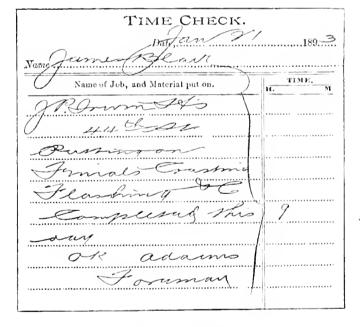


Fig. 7.1.-Time Check.

that region. It is argued that the road could be made to pay from the fact that about 4000 tourists visit the Yosemite every year, paying \$35 each for the stage ride.

Experiments are being made in Germany with a view to lighting fields of military operations by means of electric lamps suspended from captive balloons. These experiments are said to have been attended with considerable success, and the method is to be employed in the army maneuvers. The current

ordered by Congress, and will involve a study of the whole modern industrial system. The results cannot fail to be of great interest both to the employers and the workingmen of the country.

At the recent convention of the American Bankera' Association the Attorney-General of Maryland made the remarkable and gratifying attacment that for 60 years not a single regularly organized bank in that State had closed its doors and failed to pay its creditors dollar for dollar.

# RE

Sweeperettes.

so as to catch in the carpet. The A new line of carpet sweepers is now being put on the market by the Sweep-

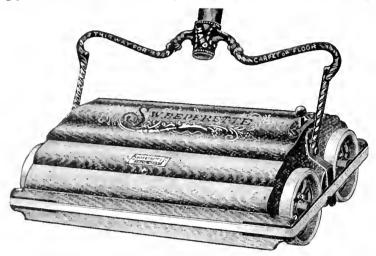


Fig. 1.-Sweeperette No. 4.

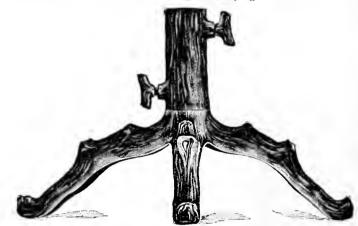
erette Company, Grand Rapids, Mich., and 76 Fifth avenue, New York. Two patterns are shown in the accompanying illustrations. That shown in Fig. 1 is made of selected birch with a light cherry finish, while the design of the box is referred to as presenting an artistic appearance. Fig. 2 shows a sweeperette with genuine mahogany veneer finely finished throughout. castings, wheels, bail and all parts exposed to the eye are well finished and nickel plated. The interior construc-tion and the material used are the same in all the various styles of sweeperettes. The handle is fastened in the socket by a flat strip of steel with an offset, which aprings over the lower inside portion of the socket, holding the handle rigidly in place. The handle can be placed in the socket or taken from it in a moment and without trouble. The pans are dumped one at a time by moving the metal ball at the top of the sweeperette forward or back, emptying the pans at a single dump, and without liability of spilling the dirt on the floor. The pans are doubled at the corners to insure

held in the sweeper in the most effective and simple manner. Braid designed to harmonize with the wood

adjustment of the brush is secured. On one side of the bail in raised letters is one side of the ball in raised letters is the following: "This way for a hard carpet or floor," and on the other side of the bail is: "This way for a soft carpet." The sweeper is to be used in the usual position, with the reading to-ward the operator, giving directions for the kind of surface upon which the sweeperette is used at the time. There is an ingenious arrangement which automatically raises the brush when it is to be used on a soft carpet, and lowers it for use on a hard carpet or floor. This adjustment, it is expisined, avoids the necessity of pressing the sweeper down and thus exhausting the operator's strength and tiring the back. The manufacturers claim that the sweeperette will sweep under a bed, table or chair, or will sweep a tile or marble floor, a feature which is peculiar to the sweeperette, and that the goods are made of the best materials and in the best possible manner.

#### Berlin Christmas Tree Holder.

Logan & Strobridge Iron Company, New Brighton, Pa., are offering the Christmas tree holder shown in the accompanying cut. The manufacturers



Berlin Christmas Tree Holder.

used in the box is put on for a furniture guard. This is secured in place and

has advantages, the makers consider,

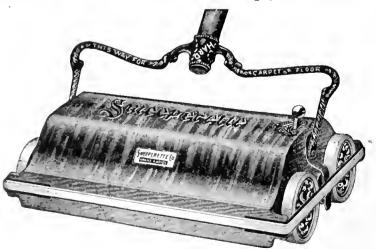


Fig. 2.—Sweeperette No. 6.

rtrength, and so adjusted, it is over rubber or other materiai for the remarked, that they work readlly and will not drop down at the corners and distinctive design, while with it an

refer to the holder as being handsome and unique, strong, substantial and nest in design. It is made with three sizes of holders which fit on the same feet-11, 21 and 3 inches in diameter. The set screw which fastens the tree has a range of a inch. The holders are finished in dark green and are packed one dozen in a case, assorted sizes.

#### Western Autograph Register.

The Illustration herewith shown is of an Autograph register, put on the mar-ket by the Western Autograph Com-pany, St. Louis, Mo. The register con-sists of a neat iron case, nickel plated, in which are independently mounted on spindles three rolls of paper, two of which are blank while the other is appropriately printed and numbered for the class of transactions for which the register is to be used. The strips of paper from these rolls are brought forward together over the writing table in the top of the register, being passed be-tween transfer ink papers in such a man-ner that whatever is written on the top strip is reproduced in fac-simile on each of the two strips undernesth. After the check is written a turn of the crank at the side draws the three strips forward simultaneously, two passing out of the register to be used in completing the trausaction, while the third is retained in the register, being rewound on the record core, making an inaccessible continuous record of all transactions. The two checks which have passed out of the register are torn off against a knife edge provided for the purpose, the original going to the purchaser while the duplicate is sent to the cashier. The register is referred to as being simple in construction, impossible to get out of order, and as being particularly adapted to the retail trade, doing away with the check book system which has been in use so long. It is also convenient, being attached to the counter, thus preventing the search for pencils, books, &c., to enter sales, &c. The manufacturers advise us that the register is giving the best of satisfaction to those using them.

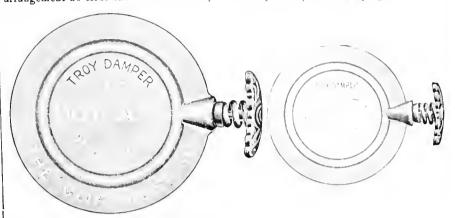
# Battery of Elevated Burton Coffee Urns.

The accompanying illustration shows a battery of elevated Burton coffee urns brought out by the Cincinnati Steel Range & Furnace Company, Cincinnati, Ohio. The hot water boiler or urn is elevated, as shown, the outlet or discharge pipes being on a level with the top of the coffee jars, allowing a free flow of hot water direct into the

water urn and this, it is pointed out, insures the jacket being filled with water of the same temperature as that which is placed in the coffee jars. The water urn is supplied with a measuring gauge to indicate the amount of water drawn into the coffee urns and by this arrangement no error can occur in mak-

#### New Pipe Damper.

The Troy Nickel Works of Troy, N. Y., have just placed upon the market a new damper, two varieties of which are shown in the accompanying illustrations. The damper is made of steel in such a way as to prevent warping. The



New Pipe Damper.

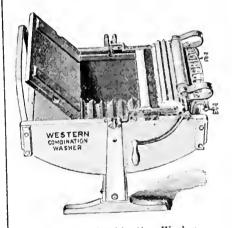
ing coffee. The urns are so arranged that either steam or gas may be used to heat them.

THE ENNIS SPECIALTY COMPANY, 311 River street, Troy, N. Y., issue a small catalogue of the goods they manufacture and handle, which include many

apring in the handle is strong, and the manufacturers claim it will keep the damper in whatever position it may be placed. One of the special features to which attention is directed is that one hole only is required in the stove pipe, and this can be quickly punched by the most inexperienced. The special features of the damper are the subject of letters patent now pending.

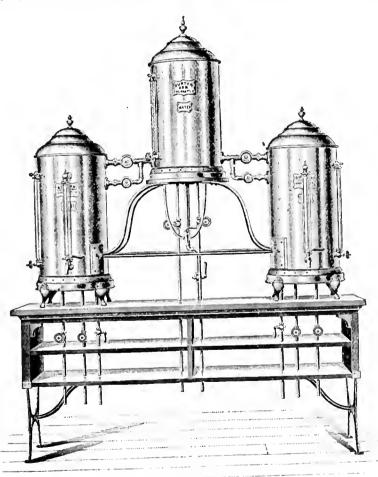
# The Western Combination Washer.

Horton Mfg. Company, Fort Wayne, Ind., are offering a washing machine, as herewith illustrated. The corrugated



The Western Combination Washer.

wood roller, which is shown in the cut as being awung on the top of the ma-chine, is described as revolving on its center when in use, and at the same time as swinging back and forth in a direction opposite to the motion of the box; also as adjusting itself vertically to any quantity of clothes in the washer. The point is made that this arrangemeut avoids the use of a pin wheel, which retards the motion of the water and of the clothes so necessary to quick work. It is explained that by a simple contrivance the machine is locked so that a wringer may be attached, as shown in the cut, and operated without tilting the washer. The manufacturers claim that the machine combines all the desirable features contained in other washera, and at the same time lessens the labor and the quantity of water required.



Battery of Elevated Burton Coffee Urns.

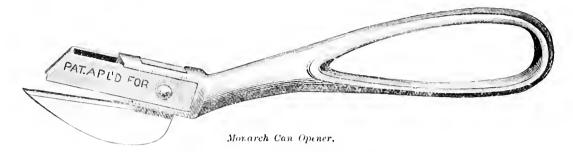
coffee jars. The boiler has an automatic filling device so arranged that the water urn cannot be over filled; it also has an inside crown to prevent the water from boiling over. Double connections are so arranged that either the coffee jars or the jackets surrounding the jars can be filled from the hot

specialties of interest to our readers. The table of contents gives a list of the articles, which are as follows: Electric ventilator, railroad dinner pails, dust pan, eake closets, bread jars, ice cream freezer, oil cans, fire pots, summer furnaces, tailor heaters and metallic skylights.

#### Monarch Can Opener.

The cut herewith shown represents a can opener offered by the Electric Letter Box Company, Meriden, Conn., and C.

He has purchased the house of the late William II. Hotaling, which will be fitted up as a store. A portion of the house will be extended to the street and a large plate glass window put in, made in an 8-inch size, and measure 51 luches when folded as in Fig. 2. The tool is full nickel plated, and, the manufacturers claim, is strong and durable, and that it can be carried in



F. Guyon Cempany, 97-99 Reade street, New York. The handle of the tool is of cast iron and the blade of tempered steel. The fulcrum also is steel and the blade and fulcrum parts are securely fastened to the handle by a strong rivet. The entire article is aluminum plated, which finish, it is stated, is entirely new. It resembles aluminum in appearance and, the manufacturers claim, will not turn smoky like nickel. These goods are put up in dozen lots on cardboard signs which are designed for display on counters or in windows.

#### Woodite Ware.

The Bronson Supply Company, 72 Beekman atreet, New York, as agents for F. W. Morse, Providence, R. I., have just commenced to introduce a new enameled ware called Woodite. The name is derived from the close resemblance in finish to the grain and color of wood. The enamel itself is mineral in character and not a lacquer or japan. The process requires several coatings, yet the covering of enamel is very thin. The ware, it is explained, is exmaking it one of the most attractive stores in the village. Mr. Ashley started in the hardware business a year ago and has built up a very gratifying trade.

#### The Bernard Folding Dividers.

The accompanying illustrations represent folding dividers put on the the pocket as safely and conveniently as a pecket rule.

THE CATALOGUE OF MICA manufactured by the Mica Mfg. Company, 89 John street, New York, shows a very interesting line of specialties of this material. In the announcement to the trade it is stated that the mica

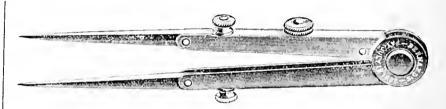


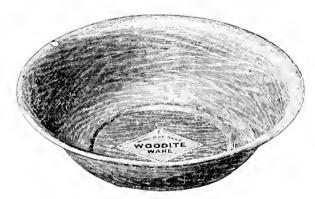
Fig. 1.-The Bernard Folding Dividers.

market by the William Schollhorn Company, New Haven, Conn., for whom Julius Berbecker & Co., 280 Broadway, New York, are agents. The points of the dividers are made of ciucible steel, finely tempered, and ar-

canopies are made of first quality, extra heavy mica, and are supplied with screw tops which make them stronger and more durable. Various shapes and forms of canopies are illustrated in the earlier pages of the book, showing their adaptation to globes, candles, lamp chimneys, &c. Mica protectors for shades are illustrated in numerous Mica chimneys for Argand burners are shown, also mica screens in various patterns. At the end is a pricelist of mica.

The American Mics Company of Kaneas City have been incorporated in Kansas, with a capital of \$750,000, to operate mica mines and build railways. The incorporators are Shelly Grover, August Isenberg, Jas. M. Poland and others, of Kansas City, Kan.

Ten carloads of refined lead from the works of the Balback Smelting & Refining Company, Newark, N. J., have been sent to Tacoma, Wash., for shipment to Yokohama by the steamer "Tacoma," sailing this week. The consignment aggregated 447,470 pounds, and is believed to be intended for the manufacture of lead water pipes for the



Woodite Wash Basin.

tremely tough and elastic, does not crack or chip from indentation and will not rust. It is not intended to withstand heat. The ware will be offered in the near future in a large variety of articles for household and kitchen use. Something like 18 months, we are told, have been spent in testing and experimenting, until the manufacturers believe it has been perfected. At present basins only, similar to those illustrated, are effered to the trade, but other lines will be ready later. The basins are will be ready later. The basins are made of IX tin and then enameled a black walnut color, although it is possible to produce various colors imitating different woods.

CHARLES ASHLEY of Port Ewen, N. Y., is about removing his hardware business to more commodious quarters. ranged for fine adjustment. The smaller thumb screws are for holding the points open, while one of the screws is connected with a spring which



Fig. 2.-The Bernard Dividers Folded.

allows the point to be moved for fine 1 adjustment. The larger thumb screw is for fastening the dividers open at any point desired. The dividers are as contraband of war.

new water works now being constructed at Yokohama. Some doubt is felt as to whether the lead may not be considered

# TIN PLATES.

Tin Plate Makers' Wages.

On Monday, October 29, the United States Iron & Tin Plate Mfg. Company, Demmler, Pa., issued a notice to their idle employees to the effect that operations would be resumed at once. After stating that the wages of common labor will not be reduced the notice con-tinues: "The following reductions will he made on high priced labor, namely: Rollers on tin mill, 30 per cent.; doublers and heaters, 25 per cent. After these reductions, if the same weights are turned out as the average weights made during the last six months, men can still earn wages, a day of eight hours, as follows: Rolling, 30 gauge, 4700 pounds, at \$5.50 per tor, 2240 pounds, \$11.12; less 30 per cent. (\$3.34), \$7.78; less catchers' wages (\$1.75) pounds, \$11.12; less 30 per cent. (\$3.34), \$7.78; less catchers' wages (\$1.75) \$6.03; doubling, 30 gauge, 4700 pounds, at \$2.70. \$5.66; less 25 per cent. (\$1.42), \$4.24; heating, 30 gauge, 4700 pounds, at \$2.48, \$5.17; less 25 per cent. (\$1.29), \$3.88. It is our desire to retain all our old employees, but we shall engage new ones in place of those who are not satisfied with this action." The action of this firm in action." notifying their employees to resume work or forfeit their positions can be considered as the opening of hostilities between the Amalgamated Association and the Tinned Plate Manufacturers' Association of the United States. will be remembered that in September a conference was held in Pittsburgh between the above two organizations at which the manufacturers proposed a reduction of 30 per cent. in wages of rollers, 25 per cent. to heaters and about 20 per cent. to other tin house The reason advanced for these reductions in labor was the reduction in the duty on tin plate of 1 cent per pound, or \$20 per ton, which went into effect on October 1, 1894. The Amalgamated Association submitted the matter of the proposed reduction to their members and a vote was taken on it, resulting almost unanimously against accepting the reduction. No counter proposition was made by the workmen, and a shut down of the mills took place, only five or six concerns continuing in operation, these being principally lo-cated in the natural gas belt in Indi-ana. In this connection it should be noted that the tin plate concerns who continued in operation were given to understand by the Amalgamated Association that they would be allowed the benefit of any concessions that might be given to the other manufacturers.

Last week Wallace, Banfield & Co., Limited, of Pittsburgh, posted notices in their Irondale Rolling Mills, at Iron-dale, Ohio, a copy of which is as fol-

lows: "Owing to a decline of 1 cent per pound in the selling price of tin plate caused by a reduction of 1 cent per pound, \$20 per ton, in the new tariff duty, which took effect October 1, 1894, it is impossible to longer run the mills at former scale of wages. All persons are, therefore, hereby notified that all contracts, &c., will terminate Saturday, October 27, 1894. We invite all our present employees, on or

before Tuesday, October 30, to apply to the manager, Mr. Banfield, who will notify them of what, if any, changes have been made in their wages, and or refuse the same. The mill will start Monday, November 5, 1894."

The above two concerns are among

the largest manufacturers of the plate in this country, and their announcement that they propose to put their plants in operation at once, and without their old employees if necessary, will doubtless cause other concerns to take similar action in the near future. The outcome of the struggle between the tin plate makers and organized labor will be awaited with considerable interest. A report that a compromise would be agreed upon and a fight averted has been officially denied.

#### SCRAP.

Work is progressing rapidly on the buildings for the new National Tin Plate Works, at Anderson, Ind. It is claimed that the works will be ready for operation by January 1.

The Yspitty Tin Plate Works, Yspitty, Wales, will shortly reopen after a prolonged idleness. The works have been acquired by Sir John Jones Jenkins, a Welsh financial magnate, who will run them in conjunction with some local individuals.

A GRATIFYING TRIBUTE to the quality of the bright tin plate made in this country was recently paid by Ferdinand Kieckhefer, a member of the firm of Kieckhefer Bros. & Co., Milwaukee, Wis., one of the largest stamping concerns in the United States. Speaking of a cargo of 500,000 pounds of Welsh plate lately purchased by the company he said that they did not like to purchase tin abroad, as the grade is inferior to what is made in this country.

A TRAIN of 15 cars left Baltimore, Md., last week over the Pennsylvania Railroad for Milwaukee, laden with a shipment of 500,000 pounds of tin plates brought by the Atlantic Transport Line of steamers from Swansea,

THE CONTRACT for the construction of the mills for the newly formed Atlanta Tin Plate Company, Atlanta, Ind., has been given to the Lewis Foundry & Machioe Company of Pittsburgh. Work is progressing on the buildings at Atlanta, and will be pushed as rapidly as possible.

THE WELSH TIN PLATE WORKERS who recently went to Darfo, iu Italy, to operate a new tin plate works erected there, have been discharged and sent home again in consequence of their refusal to teach the natives.

THE LEECHBURG FOUNDRY & MA-CHINE COMPANY, Pittsburgh, Pa., have received an order from the Monongahela Tin Plate Company of that city for a Mesta patent pickling machine.

made from them are too badly rolled to admit of their being tin plated. Consequently they are forced to rely on England for their tin plates.

THE order for the machinery for their new plant at Anderson, Ind., has been given by the National Tin Plate Com-pany to the Totten & Hogg Iron and Steel Foundry Company of Pittsburgh. It will be a four-hot mill plant of the latest pattern.

IT IS REPORTED that a black plate mill will be built at Leechburg, Pa., a number of the leading citizens being interested and the necessary capital having been subscribed.

La Métallurgie, a French technical journal, gives the following information in regard to the tin plate manufactur-ing industry in Spain: "The manu-facture of tin plate was introduced into Spain by the Iberia Company, the works of which produce about 100,000 boxes per annum. Tin is made from the bars of the Biscay Company. total consumption of tin plate in Spain is estimated at 150,000 boxes per annum. A new firm, the Basconia Company, are erecting large works for the manufacture of this product. It is thought that two establishments will be sufficient for the requirements of the country." The last named concern is probably the works built by a Welsh firm who have just started into operation at Bilbao, in Northern Spain.

THE ABERCARNE IRON & TIN PLATE Works of Abercarne, South Wales, are to be put up to auction on November

IT IS NOTED in late British trade reports, as worthy of special mention, that orders for terne plates from the United States are again being received in some quantity in the British market. This is referred to as being a decided change for the better. For the past year or more the demand for Welsh terne plates in this country has been so limited, owing to the wide adoption throughout the country of the domestic product, that the imports of these plates from abroad had shrunk to very small proportions and would, doubtless, soon have ceased altogether but for the temporary stoppage of so many American works owing to the existing wage diapute and the consequent restriction in the supply of home made roofing plates.

THE PLANT of the Crescent Sheet & Tin Plate Company, Cleveland, Ohio, will, it is announced, be in full operation by April 1, 1895. The land on which the mill will be established is a tract of 6½ acres on Bessemer street, Cleveland, which the company have purchased at a cost of \$14,500. Contracts have been placed for hot and cold mill machinery and for four Corliss engines. The bulldings and equipment will cost about \$150,000. production of the works will be black and terne plates exclusively. The buildings, for which the contracts were let this week, will be of iron and brick. The works will give employment to about 250 men. The temporary offices

(Continued on Page 63.)

# PLUMBING and GAS FITTING.

### Public Conveniences.

The scarcity, in the large cities of the United States, of what are known abroad as public conveniences, occasions much well merited complaint. In a few of the public squares small houses may be found for use by men, but the number is entirely inadequate to the needs of the people. Through the suggestion of Piumbing Inspector W. T. Taggart of Pittsburgh, a keeper of a public house, where the local conditions were convenient, is about to throw open to public use a set of modern plumbing fixtures. This is a step that could be followed by others in that and other cities with advantage. In Paris and Marseilles there are a number of well equipped closets and stalls in charge of the municipality for use of the public. The cities also provide at frequent intervals along the streets small sheet iron houses for urinals. In London there is an increasing number of conveniences, which may be entered by going down a few steps to a well lighted apartment with a tile floor and fitted with the best sanitary appliances, in charge of an attendant, who for a small sum supplies toilet paper. The plumbers of large cities would be gratefully remembered by many if their associations would devote some of their energy to devising some system that would be acceptable and then laboring to bring it into use.

### A Tale of a Ram.

BA LOSSIT.

Allow me to note in the preamble of this veracious narrative, that while it is not a statement of dry facts, being about a water ram, yet it may prove to be a dry statement of facts in which there will be no attempt to pull the wool over the reader's eyes. In the so-called land of steady habits, which curious non-residents say means, fixed and permanent habits of sharp dealing formerly manifest in the merchandise of wooden nutmegs and horn gun flints, there is a property whose water supply is contingent upon the far from steady habits of a hydraulic ram. For a long time it was erratic in movement, sometimes working as freely as the proverbial jerks of a lamb's tail, and operating in a way that would be considered illbred in animate nature. The local knowledge and ingenuity was taxed to discover whether the fault lay in the ram or the water supply, much advice being given and many experiments tried. It may be said here that every one of the doctors declared that it ought to work after his prescription was tried, but after a few hours of showing what it could do, it would go on strike by keeping still. The matter was then laid before the hydrostatic wisdom of the country through the medium of The Metal Worker's Letter Box, resulting in various diagnoses and proposed remedies which at least furnished copy for that journal. Following the advice so kindly given, we ran it with a maximum and then a minimum aupply of water; made an air hole in the drive pipe and stopped the same, loaded the

valve with a dead weight and checked | it with a spring-both in turn discarded after trial-renewed the packing, tightened bolts, &c., &c. There was considerable knowledge gained by these precepts and practices toward the desired end of causing the ram to hoiat water as it should, and this knowledge together with his own "gumption" led the Boss Farmer to contrive something as follows: A short board has one end resting on the valve stem and the other is hinged to an upright. The horizontal hoard may be loaded to suit the water pressure and its advantage over a fixed weight or spring seems to be that it works more on the percussive principle. Any way, there is less "cussin" and more steady and sufficient butting than formerly. The improver will perhaps get honorable mention at some coming agricultural fair.

## TRAPS AND VENTS.

JOHN H. READ of Brooklyn, N. Y., well known to the plumbers who attend the National Conventions, is on the legislative ticket in his district.

THE CITIZENS of Milwaukee, Wis., have expressed their intention to support the Board of Health, who have met opposition from the Common Council in the enforcement of the local sanitary regulations.

J. B. GILHOOL. Carbondale, Pa., select councilman, is about making extensive improvements upon his South Main street residence and business place. A hot water heating plant has already been put in place in the basement. In the near future he expects to move his plumbers' shop to a building at the rear of the store and thus give increased space within his salesroom for the display of his atock of hardware. The building is to be completely transformed in appearance, the greatest change being in the front. The design calls for a handsome elevation of the most modern design with large plate glass windows in both stories.

FRANK McCAULEY has moved his plumbing shop to the rear of the Emley Building, corner of Market and Warren streets, Huntingdon, Ind.

The Members of the firm of Macdonald & Co., 296 Sixth avenue, New York, amicably arranged for the settlement of their affairs on the anniversary of their original partnership agreement. As a result the court entered an order on October 29, discharging the receiver, James Muir, who was the choice of the firm, and ordering him to turn over the material and tools to the new firm, Bryant & Crow. The old establishment will be closed, and all of the machinery and fixtures will be moved to the new showrooms and shop of Bryant & Crow, at 12 East Twenty third street. The firm are also to be congratulated on having secured the contract for the plumbing in the new 24 story building of the American Tract Society.

"THE SPRINGFIELD GAS MACUINE" la the title, printed in red ink, of a tasteful pamphlet issued by the Gilbert

& Barker Mfg. Company, Springfield, Mass., with New York office at 90 John street. The pamphlet, which is 7 x 6 inches in size, bound in red paper, describes very thoroughly the Springfield machine and makes the subject particularly attractive by means of illustrations showing the application of gas to cooking and hesting. At the end are a number of pages of testimonial letters which speak in high terms of this apparatus.

THE MASTER PLUMBERS of Somerville, Mass., have completed a permanent organization. The following officers have been elected: James F. Davlin, president; W. H. Snow, C. W. Cahalan, A. J. Smith, vice-presidents; P. J. O'Brier, secretary; W. F. Bennett, financial secretary; Thomas H. Naughton, treasurer. The organization is to be known as the Somerville Master Plumbers' Association. Meetings will be held in Eberle Hall the first and third Tuesdays in each month.

THE PLUMBING BOARD of Yonkers, N. Y., has issued certificates of competency to Michael Reagan of 40 Orchard atreet and Thomas J. Thornton of 470 West Thirtieth atreet, New York, they having passed satisfactory examinations.

Cummings & Stretton, plumbers, Woburn, Mass., have dissolved. They are succeeded by W. F. Cummings & Co. The new firm have taken spacious quarters at 419 Main street.

- J. L. LAWRENCE & Sons, Deckertown, N. J., have opened a branch plumbing and steam fitting shop in Unionville and in connection with the Water Works Company are prepared todo any kind of work in their line.
- C. E Coe, New Haven, Conn., formerly of Neumann & Coe, has opened a plumbing establishment in the basement at the corner of Howard avenue and Putnam street.

WILLIAM JONES, an old resident of Chelsea, Mass., died at his home in the Prattville district of that city last week. For many years he carried on the business of a practical plumber in Chelsea, and in his later years became a successful inventor of devices used in his craft.

RICHARD DONAGHY has moved his plumbing business to the atore on Eastern avenue, St. Johnsbury, Vt.

Beh & Tourtellotte are a new firm in the plumbing business at Middletown, Conn.

JOHN ADAMSON has opened a plumbing establishment at 40 Franklin street, Norwalk, Conn.

A. L. McGrath has opened a plumbing establishment at 37 Crescent avenue, Bridgeport, Conn.

The D. B. Hilton Company of 480 Clermont avenue, Brooklyn, N. Y., issue circulars relating to a new process for retinning bathtubs without removing or disturbing the plumbing or wood work. The process, as described in the circular, is said to require three costs of metal (being a liquid), the largest portion of which is pure tin, and is put on hot. It is further stated that it

thoroughly covers all leaks and is comparatively inexpensive. A number of references are appended to the circular from people in New York and Brooklyn for whom they have retinned bathtubs.

Du Bois & Darrow. 61 Gold street, New York, have conspicuously displayed in their showroom a sample board on which are arranged the pipe holders made by the Evory Mfg. Company of New York. These holders are made of cast iron, either plain or ornsmental in design and tinned or nickel plated as desired, and are used for holding lead pipe in position instead of the ordinary lead tacks which have to be soldered to the pipe. The holders are said to fasten the pipe much more securely and can be put in place in 60 seconds.

Young Pepper Davidson of the Knights of Tabasco is about to make a tour of New Jersey and Eastern Pennsylvania in the interest of the plumbing goods of the Meyer-Suiffen Mfg. Company of New York.

James K. Hamilton, a Sanitary Inspector of the Twenty-first Ward of Philadelphia, died on Tuesday at his residence, on East Everington avenue, Roxborough, Pa. Mr. Hamilton was 35 years of age and was born at Roxborough. He was formerly a member of the plumbing and heating firm of Struse & Hamilton of Manayunk, and was subsequently appointed a Sanitary Inspector, in which capacity he did a considerable amount of work in connection with the improved drainage of Manayunk, Roxborough and Wissahickon.

According to an item in a local paper a class in plumbing is to be started Monday, November 12, in connection with the Trades School, at Springfield, Mass. F. W. Tower, City Inspector of Plumbing, has been engaged as instructor, and in addition to the regular instruction, talks are to be given each evening on methods of laying out work. Persons wishing to join can secure information by addressing L. P. Strong, the superintendent.

In describing the characteristics of an up to date plumber in *The Metal Worker* of last week, through an error the wrong name was given for William L Whipple, 49 Manton avenue, Olneyville, R. I.

THE HENRY McShane Mfg. Company of Baltimore, Md., have secured 70 acres of land just beyond the eastern city limits, about 2 miles from the Maryland Steel Company's Works, at Sparrow's Point, and will erect a new plant. The buildings contemplated include a pipe foundry, a pattern shop, a brass foundry, bell foundry, finishing shop and power house. The company's product includes iron pipe, brass fittings for plumbers' and other uses, and bells. Construction work will begin early in 1895. About \$1,000,000 will be expended.

THE BOARD OF HEALTH OF Asbury Park, N. J., having refused to indorse the dry closet system for their schools are now confronted by a modification of it in the form of a doubtful latrine. The plumbers of the city are rendering the board excellent assistance in placing their knowledge of the disposal of sewage in a sanitary manner before the public.

Donaldson Brothers, steamship owners, are about to run a freight line of steamers between Boston and Bristol, England.

## Trade Notes.

W. R. DAUGHTRY, Opelika, Ala., is the inventor of the Cyclone Water Motor, for which he desires to make manufacturing arrangements. He claims many advantages for it, including simplicity and durability.

BEAMAN & SMITH, Providence, R. I., send us a copy of their No. 1 special pamphlet, descriptive of the class of work which can be accomplished with their No. 1 Horizontal Spindle Drilling and Boring Machine.

THE ADVERTISEMENT OF Bruce & Cook, 190 Water street, New York, which will be found elsewhere in this issue, calls attention to their extensive stock of Tin Plates. Reference is made to their bright charcoal and coke Tin Plates, of which they have a full assortment of sizes; also to their Roofing Plates, of which they present a list of names of between 20 and 30 different brands of various sizes and weights. Mention is likewise made of Solder and Russia Sheet Iron.

THE EXTENSIVE Tin and Japan Warc manufacturing plant formerly operated by the Geo. D. Winchell Mfg. Company, Cincinnati, Ohio, who failed about one year ago, has been purchased from the assignee by the well known firm of the F. H. Lawson Company, also of Cincinnati, Ohio. The new owners were to start up the plant on November 1, and increase the present facilities as necessity demands. To begin, over 100 men will be given employment. The establishment is well located, and is said to be one of the best equipped and largest of its kind in the West. The F. H. Lawson Company are well known to the trade, having been identified with the Tinners' Supply and Tinware business for many years past, and of late years as manufacturers. They are also known for their own brands of Tin Plate —Lawson and Old Process.

OUR READERS will be Interested in the system of exhaust ventilation shown in the cut in the advertisement of the Kernan Furnace Company, Utics, N. Y. It shows the Kernan system of heating by hot air furnaces and ventilating the different rooms by means of exhaust ducts.

J. P. Marsh & Co., 224 Washington street, Chicago, are in receipt of many orders for their Acme Automatic Air Valves, among which can be mentioned one from E. F. Keating, 75 John street, New York, for 112 dozen No. 6, with hest controlling attachment.

THE JOSEPH DIXON CRUCIDLE COM-PANY, Jersey City, N. J., issue their usual monthly calendar, calling incidental attention to Dixon's pencils. The card is backed with a blotter, making it convenient for desk use.

THE NEW HAMPSHIRE MICA MINING COMPANY, 7 Water street, Boston, Mass., distribute a price-list of Mica bearing date of October, 1894. The company make special prices on wet and dry ground Mics, ground Feldspar and Quartz. The mines of the concern are located in Newport and Claremont, N. Y.

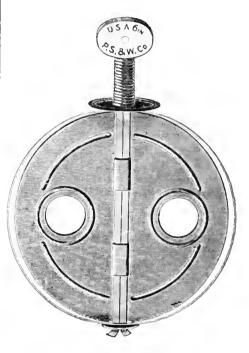
THE W. DEWEES WOOD COMPANY, McKeesport, Pa., manufacturers of patent planished sheet iron, have commenced the erection of a new iron building to take the place of an old frame one. The erection of this building gave rise to the report that some extensions were being made to the plant of this firm, which report is untrue.

The Canton Rolling Mill Company, Canton, Ohio, turned out 105 tons of finished Sheets in six days recently. The sverage output for their two-mill plant is 75 tons per week. The members of the above concern and most of the employees are Sheet mill workers who were formerly employed at Apollo, Pa., and Leechburg, Pa., but lost their positions by going on a strike.

THE ANTHONY WAYNE MFG. COM-PANY, Fort Wayne, Ind., have secured a ten year lease on a lot in St. Louis, Mo., 150 x 240 feet, and are overhauling their plant preparatory to removing to that city.

### The U. S. A. Stove Pipe Damper.

The Peck, Stow & Wilcox Company of Southington, Conn., have just brought out something new in the way of a stove pipe damper, an illustration of



The U. S. A. Stove Pipe Damper.

which is presented herewith. The device is constructed of wrought iron and steel, and is made under C. T. Redfield's patent. The makers state that it holds its place firmly in the pipe, and its position is always indicated by the wooden handle. The steel shaft pass ing through the damper forms, when locked down, a positive bearing on the plpe from outside to outside. Before locking the damper the pipe and spring are compressed, thus freeing the damper, so that it always works easily in the pipe and at right angles to the shaft. The circular shield on the outside of the pipe, between it and the handle, protects the wooden part from heating or burning off. The wooden handle is made of two disks, in which is imbedded, by pressure, the oval end of the steel shaft. The parts are then riveted together. The makers state that as the dampers are of sheet steel they can be readily changed in size to fit smaller pipe or that of irregular con-formation. The spring is said to be very elastic and not liable to set, as only the small metal shaft passes through it. It is protected from radiation by the shield and holds the damper firmly in any desired position.

# STOVE TRADE NOTES.

# The New England Stove Trade.

The comparison of the business of October with that of the month immediately preceding shows very little change in the volume of trade. In some branches there was an increase and in others a slight falling off. During September dealers generally laid in more or less light stocks and the continued mild weather has, combined with other and long standing adverse influences, prevented the unloading of these goods to any considerable extent. Retailers throughout New England appear to have plenty of jobbing work, but they report store trade as light. Of late the demand has been exceedingly erratic, indicating that hand-to-mouth buying is still in favor, but, on the whole, taking into consideration the temperature, the business of October may be characterized as hardly up to expectations in volume and only fairly satisfactory in other respects. There is a mild sort of clamor for lower prices, but this is generally estisfied by the substitution of inferior goods, if the low price is insisted upon. Collections from the larger centers are fairly prompt, but reports from the country districts are not so favorable.

One of the peculiar features of this season is that the demand for ranges seems to be larger than that for parlor stoves. This is to be accounted for in various ways-first, by reason of the warm weather, and again because of the competition of small furnaces and oil heating stoves. It appears that a gradual change is in progress, the tendency of which operates against the sale of higher grade parlor goods. In large cities and towns very few houses are erected without heating apparatus of some kind. This is especially true of the better class of dwellings, but it is likewise a fact that the modern tenement house is so equipped. The low prices at which good furnaces can be obtained leads to their being put in many old houses in the cities, and even out of the way places are attracted by the low cost of the heating systems. Among the poorer classes of the people the showy and elaborate oil parlor heaters are in considerable vogue, and going in many places where heretofore a parlor stove would have been bought. Furnaces are moving moderately.

While the demand suffers somewhat from the curtailment of building and the competition of hot water and steam, still most manufacturers in this territory are doing a fair amount of business, but no more than, if in fact quite as much

as, in September. Oil heating stoves are selling freely and the better goods in this line seem to be gaining on the poorer grades. The repair trade is irregular but quite active at present, and indications point to increased business as soon as weather conditions become favorable.

#### St. Louis Stove Trade.

But for the unfortunate spell of warm weather which set in about the 20th and continued until the 27th, the month of October would have been a remarkably heavy one. As it was, however, it has been very satisfactory, and with seasonable weather now prevailing a continuance of this demand is confidently anticipated. It is next to impossible to induce the retailer to anticipate his wants. Many of them carried over good sized stocks from last year and seem determined not to do the same thing this year, and, as a result, instead of orders of from 6 to 20 stoves of one kind being received, they run from one to five stoves, creating the impreasion that the dealer has the stove sold almost before he orders it from the This condition of affairs makes it particularly hard on the manufacturer, and the only satisfaction the manufacturer can derive from the situation is that nearly every other line is in the same shape. The demand at present runs largely to heating stoves. Some high-class goods are being ordered, but the major part of the trade are ordering medium class goods. The large number of gas and oil heating stoves which are now on the market is having its effect on the sale of heating stoves, especially the smaller size of heaters. The local foundries are all running full and are melting on an average of 100 tons of iron daily, and are thus enabled to keep their atock in good shape. In some lines they have run short, especially steel ranges, one concern having been compelled to strip their sample room to fill orders. As a rule, however, stocks are in good shape and orders are filled as they are re-

The gasoline manufacturers are already booking orders for next year, and while the season is yet very young sufficient sales have been made to indicate that next year's business in this line will be unusually heavy. Improvements and changes have been made where they seemed necessary, so that the line of 1895 gasoline stoves will be still nearer perfection.

The sale of sheet iron air tight heat-

ers has been very large, especially in the sections where wood is much used for fuel. The competition had caused more or less cutting on the prices of these stoves, and this fact is likely to cause some of the smaller manufacturers to cease making them after the season is over.

#### A Chat About Water Street.

BY JEEMS

The oldest inhabitant of this section cannot recall a time when there have been so many stores to rent in this vicinity as there are now. Fulton street, Front street and Pearl street have a number of stores to rent and many have stood idle for over a year. The easterly corner of Fulton and Water streets was, The easterly at one time, one of the best business locations in New York, and many a stove man was wishing to get it. The wood and hollow ware firm of Lockwood & Co. occupied it for many years and did a thriving business, but it has stood more or less idle for a long time. And Cort's so it is with many other stores. Cort's corner on Beekman street is almost deserted and, in fact, there is a real quiet taking possession of this once busy region. The diversion of the Brooklyn travel from the ferries to the Bridge is, perhaps, the prime cause of this change. Yet it does not account for all of it. Other causes are at work so far as the stove trade is concerned. Water street and stoves were as firmly connected together in the public mind as leather was with the Swamp, but while the Swamp is still so well-known for leather, outside of the stove trade Water street has disappeared from pubwater street has disappeared from public view. In fact, the masses know nothing of such a mart for stoves. In the old days the city housekeepers, as a rule, bossed the cooking, if they did not do it themselves, and the kitchen fairy that would dare to hint that she owned the kitchen would get the fire p— d— q—, you het. Consequently the getting of atoves and the using of them were very important affairs, and the housekeeper kept herself posted regarding them and made her pilgrimages to Water street to see the stoves if she wanted one, even if she did not buy there.

But all has changed, and is still changing. As city people began to spread out and started to build, many bought their own lots and built for themselves and selected their own ranges and furnaces; but that is done now almost exclusively by the architects or builders, who buy in quantities and the occupants of the houses use the srticles they find in them, consequently they never have to post themselves about buying them and have not the remotest idea where they do come from. larger Water atreet concerns ship most all their goods from the boat and all the big bustle and confusion that used to be there are simmering down; this, together with the absence of the people hustling for atores, makes it a comparatively atlll place except for a short time during the fall, and while the total volume of business is still large the life seems to have left, or is leaving, the trade there.

But after all it is only a part of the evolution of New York's business changes that is going on, but while more room and territory are demanded by many trades, it does not apparently apply to the stove trade—it has enough, as the vacant stores indicate.

Why, they don't even have any more prayer meetings down there. In Johnny Allen's and Kit Burns' time, when the original Parkhursters started to clean out the dives, they went at it boldly and openly in the daylight and got right down on their knees in Water street and prayed for all they knew how, and rooted out the dives. didn't fool much with Lexow business; no, and they wouldn't tolerate living pictures-that crowd wouldn't. Speaking about the Lexow Committee, there are two stove men on it, Geo. W. Bobertson of Southard, Robertson & Co., who used to live over in the old Eleventh Ward, New York, formerly known as "Stag Town," now "Jeru-salem," and Dan Brsdley, "Uncle salem," and Dan Bradley, "Uncle Dan," as he is familiarly known now. Dan used to lug bundles of bricks and castings over Catherine Ferry to Brooklyn, and do the stove pipe act around that town in a good and workmanlike manner. But he don't do it now. What the future will develop for the stove trade in New York, and especially for its continuance in Water street on its present basis, is a problem to be solved, but guess it will be continued

in some shape. One of the latest removals from Water street is of an old concern, who, while not identified with the selling of stoves there, are large buyers of them and belong to the fraternity. Holbrook, Merrill & Stetson of San Francisco, who have had an office with Munsell's people for many years, have moved to a new office in a Broadway sky scraper. The removal was rendered necessary owing to the large increase of Munsell's mica business, requiring all their room. Merrill's departure has somewhat interfered with a coterie of weather observers of which he was one. who usually took the aun and tested the humidity of the air several times a day; in short, kept the day moving in regular order. The day is like everything else-apt to go wrong unless it is 'tended to. It is remarkable to what extent habits control us. Charley Merrill had traveled the road so many years to that Water street office that after removing to Broadway for a while he turned into Water street every morning on his way from his Brooklyn home and marched up to the old office, and one morning nearly broke his neck stumbling over a case of mica before he realized where he was. He finally laid in with the "shineer" on the corner of Fulton street to head him off if he turned into Water street and also tipped the policeman to put him right if he saw him going wrong. Gus Brush, Merrill's right hand man, climbed up 13 or 14 stories in the new building a number of times before he thought about the elevator service, but is now quite used to the "lift," as the Englisher says. John Fraser, chief astronomer of that party, is considerably bothered by Merrill's removal, and so is Munsell. They say the sun is crooked, he don't rise as he should, and in fact the solar system has got out of gear and they can't straighten out things. About the size of it will be a new weather bureau will be started, nearer Broadway possibly. This taking the sun, seeing a man or discussing affairs used to be quite an observance among the old Inhabitants of Water street, but a chill has come over the custom and the sociable element is somewhat at a discount.

### New England Stove Notes.

A correspondent of The Metal Worker, who has just completed a business trip through the New England stove districts, reports the stove foundries in that section of the country as being on the whole in a very gratifying condition of activity. Manufacturers are experiencing a considerably better fall trade than they had looked for a few months ago. Most of the foundries are running full and their books, in nearly every case, show a material increase in orders over those of last season. In some instances the demand for goods for early delivery is above the capacity of the works and the manufacturers are hard pressed to fill the requirements of customers satisfactorily. The impression appears to prevail, however, that the improvement may not be a very lasting one, and no great enthusiasm is expressed as to the outlook for later in the year. Meanwhile the energies of the stovemen are being exercised to the utmost in "making hay while the sun shines.

Among the concerns specially mentioned by our correspondent are the Magee Furnsce Company of Boston, who report a very good fall trade in their stoves and ranges, with shipments running ahead of their capacity of manufacture. The Weir Stove Company, Taunton, Mass., are running full in their foundry and shipping many more goods than they had expected to be able to dispose of this fall. The Taunton Iron Works are reported to be in a similar condition of activity, and all the Taunton foundries appeared to be busy manufacturing and shipping goods.

The Dighton Furnace Company of North Dighton, the Somerset Company, Operative Foundry Company of Somerset and the Eagle Stove Foundry Company of Fall River were each fully occupied, and reported the demand for stoves and ranges to be very good, both from dealers and individual buyers. A peculisrity of the Fall River concern above referred to is that it is probably the only stove foundry entirely managed by a woman, who since the death of her father, the founder of the firm, has had complete control of all the departments of the works, which she is said to run most successfully.

The Richmond Stove Company, Norwich, Conn., are running their works to about two-thirds capacity, melting some 12 tons of iron a day and experiencing a very fair trade in heaters and boilers. The Stamford Foundry Company of Stamford are also busy, with good prospects shead.

The H. B. Smith Company, Westfield, Mass., are shipping many heaters and radiators in response to orders, and consider their fall trade as very satisfactory on the whole. The stove foundries at Providence, R. I., are also said to be all running and doing a very fair business at this time.

Taken altogether, our correspondent is of the opinion that the New England stove foundries are running fuller and receiving more encouragement than at any time in the last two years. At the same time prices are very low and business is done on so narrow a margin that the increase in its volume does not by

any means represent a corresponding increase in profits.

In connection with the stove trade, it is mentioned that the Eaton, Cole & Burnham Company of Bridgeport, Conn., makers of east fron fittings, valves, &c., are running their works to full capacity and melting about 27 tons of iron a day. They report their business to be about normal in volume, considerably better than that of last year, and fully equal to 1892.

In contrast to the stove trade work in the jobbing foundries in New England is reputed to be very slack. Those at Boston, Lynn and other points in Massachusetts, as well as the New Haven and Hartford foundries in Connecticut, are all spoken of as running on short time, with a lamentable scarcity of orders.

#### The Retort Soft Coal Heater.

The Marion Stove Company of Marion, Ind., present another illustration of success achieved through the manufacture of a single type of stove and making it as perfect as they know how. They only make the soft coal heater known as the Retort, but their trade extends all over the soft coal regions of the country. It is a stove which burns any kind of soft coal, and, it is said, cannot be made to smoke. Coking coal is burned without caking or clogging. In it soft coal is as easily handled as hard coal in a base burner. Fire has been kept in it for 96 hours. The coal is fed into a magazine, in which it is heated, but not burned, so that when it reaches the combustion chamber it is coked, and thus emits no smoke. The door of the combustion chamber can be opened without fear of emitting a cloud of smoke into the room. No damper is used in the pipe for controlling the draft, but the pipe is left with a clear passage at all times, the combustion being controlled by slides for the admission of air at the top of the stove. Very intelligent and sensible methods are followed in selling these stoves. Instead of blindly trusting to the experiments of consumers to find out for themselves how to burn their local coal the company ascertain the character of the coal and furnish directions how to use it to get satisfactory results, and thus find no failures and hear of no trouble. President F. J. Gould has made a valuable collection of analyses of the soft coal produced in all parts of the West and South, and his long experience when backed by this knowledge enables him to tell a consumer how to handle his local coal. changes are made in the interior of the stove in doing this, except that a fluted magazine is furnished for coking coal and a plain or smooth magazine for non-coking coal. That the company have a very high class of customers is shown by the fact that they passed through the panic of last year without losing a single penny on their Retort stove sales. Up to the present time only two sizes of this stove have been made, but the company are now bringing out three more sizes on the same principle, which will be smaller and somewhat cheaper, to meet the demand for cheaper goods.

Advices from Indianapolis are to the effect that owing to the improvement in general business and especially in the stove trade, the Indianapolia Stove Company of Indianapolis, Ind., have advanced the wages of their employees 5 per cent.

## Estate of A. Froelich,

289 Pearl street, New York, publish a catalogue of stove, range, heater and furnace repairs and stove dealers' supplies, which they make and handie. The publication is particularly neat and serviceable, bound in heavy red paper, provided with a loop in the corner for hanging up and is of convenient size, measuring 5 x 8 inches. In presenting the book to the trade the publishers call attention to the fact that all their castings are marked in full with the name of the stove, &c., to which they belong, thus rendering it an easy matter for any person to tell at a glance the full name of any repair which they manufacture. Their stock of water backs, they announce, embraces all those used in this market, and add that they are made from wood patterns and are thoroughly tested before leaving the foundry. In referring to their stock of stove dealers' supplies, they mention that it has been carefully selected, and embraces only such articles as are considered the best in the market. Directions for ordering repairs begin the book, then outlines of stoves, ranges and furnaces with accompanying text telling the names of the different parts, alt of which will prove of much service in ordering repairs. The catalogue of repairs proper covers 64 pages, the names of the stoves or beaters, as the case may be, being given alphabetically. The name of the manufacturer ically. is also given, and where further particulars are necessary to distinguish the repair foot notes tell what is required. The list of water backs alone covers A special repair notice is seven pages. to the effect that by arrangement with the manufacturers all repairs not listed in the catalogue and made by the concerns whose names are appended can be furnished in a few days. Then fol-lows a list of a number of prominent atove and furnace manufacturers. cellaneous repairs are noted after this; a number of illustrations of grates are shown; then atove leg reats, knobs, turn keys, ornaments, shakers, lifters, &c. Shovels are shown in large variety; brushes, cements, dampers, stove pipe rings, thimbles, eibows, stove pipe ventilators and chimney caps, registers, stove bolts, laundry stoves, mica, &c. A table of contents is printed at the end. Altogether it is an excellently arranged and serviceable catalogue which will be appreciated by the trade.

### Southern Stove Works,

of which Kiechle, Brentano & Oberderfer are proprietors, Evansville, Ind., have recently issued from the press a comprehensive catalogue of their specialties. The volume is made up of over 100 pages, tastefully arranged, carefully printed, profusely illustrated and bound in imitation leatherette covers, the side title being embossed in old gold letters. The frontispiece is a perspective of the building containing the main store rooms and offices of the company on Eighth avenue, running from Water to Ohio streets. In offering this volume to the trade the company call special attention to their new line of Our Leader ranges for wood; Our Gem Leader ranges for coal, and also for wood; the Royal Leader coal cooks, Star Leader wood cooks, Our Leader air tight soft coal heater, Our Leader Franklin stove, the Bess cannon stove, the Leader Oak coal and wood heaters, the Paragon box atove for wood, and the Clipper laundry stove. Owing to increasing business the company found it necessary to

increase their facilities, and have just completed buildings which give them double their former capacity. opening pages of the volume call attention to various matters of interest to the dealer, among which are directions for shipping goods, directions for operating stoves, telegraphic code, and directions for setting stoves. The various lines of goods shown are described in a way to enable the dealer to understand the important features of construction, while at the same time there is given the sizes in which the stoves are made, their weight, size of oven and list price. A portion of the work is devoted to hollow ware, tinware, elbows and miscellaneous goods. A feature which the trade does not fail to appreciate, especially when ordering repairs, and which is becoming common to the catalogues of leading stove manufacturers, are skeleton cuts of stoves, with all the plates numbered and referring to an explanatory table by which the dealer is enabled to designate by its proper name the part wanted.

### Gas and Stoves.

BY ATMOSPHERE.

There is a lot for the average man, particularly stove man, to learn about gas and stoves that will be profitable. Gas stoves for cooking are being used by the very rich and the very poor; by the former on account of comfort and convenience, and by the latter on account of both of these and economy. In the tenements of New York the poor use gas stoves, and some, having got beyond the hot plate stage, are using a better grade of stove. The fuel is not expensive, because the fire is lit or out in a second, and consequently a dinner can be cooked cheaper than with coal and without roasting the family. The hot plate is not to be underrated, for it is capable of good service.

A bright woman uses a two-burner hot plate to cook for a family of nine people, and, with a mutton stew and three vegetables, she served peach short cake as a dessert. A Beveridge cooked the atew and vegetables, and a sheet iron plate over one burner, with a tin pan turned over it for an oven, baked the short cake. Other women find the hot plate just as cheap and convenient as this woman, whose gas bill for three months for cooking and lighting was about \$10. She ran a fire in a coal range once a week for baking and laundry work, and she caiculates that by using gas her fuel bill is less than if coal had been used all the time. This accounts for a falling off in the sale of small coal ranges in summer, about which some of the dealers are growling.

The live atove and house furnishing goods man has a line of gas stoves and the cooking utensils that are used with them. Some of the big stove makers are using a gas stove in their kitchens, though they could have the best and handsomest coal range made if they wanted it. It would not be atrange to see a number of stove foundries with a line of gas stoves in their catalogues next year, for many of them sell less of their small goods and have got to melt less iron or fill in with something else. This is the time of the year for heating stoves and with gas radiators, gas logs, gas Franklins and other styles of gas heaters the trade in coal stoves is likely to suffer some. A gas stove cannot be beaten for heating an office, a bedroom, or any room where the fire is not in constant use. Coal is cheaper than gas to run continuously or even for

short periods, but it requires more attention, more labor and makes a lot of dirt, which the modern up to date folks will not stand.

Some say a gas stove with no fiue connections poliutes, vitiates and does other things to the air in a room that are a disadvantage; still they are used and in large numbers, and more are going to be used, which pleases the seller. They can be had with a chimney con-nection if wanted and the quantity of heat lost is not as great as with other methods of heating that also afford ven-It is said they dry the air tilation. in an apartment and artificial moisture is necessary, while others hoot at this idea and say the combustion of gas liberates enough moisture to saturate the air. Be this as it may, some highly esteemed gas experts aay that an urn filled with water can be used with a gas stove with comfort. Some people have found an urn of water to be an advan-tage on a coal stove and have been laughed at by others.

Hot air furnaces and hot water apparatus adapted for the use of gas only as a fuel are being atrongly pushed this year and show the disposition to avoid the labor and dirt that attend the use of coal as fuel. The buyers have not demurred at a probable increased cost of heating where the comfort and convenience can be afforded. It has been said that gas had seen its day when electricity commenced to attract attention, but it would seem that the "'possum' was only asleep and it is now making a run on the coal stove business that will make the foundrymen and retailers look around later to see what hit them if they haven't got an eye open now.

#### ODD PLATES.

THE PORTSMOUTH STOVE & RANGE COMPANY advise us under recent date of the death on October 21 of Will Stork, who for a number of years past has represented their interests on the road. Mr. Stork was at the time of his death in the prime of life, and was perhaps the best known salesman in the territory covered by him, having traveled over it for upward of 20 years. The company deeply feel his loss, and fully appreciate the fact that his place will be hard to fill.

RENEWED ACTIVITY is reported in the Canadian mica mines, near Beaver Lake, Province of Quebec.

F. V. STREETER, representing the S. M. Howes Company, 40 Union street, Boston, is one of the literary traveling salesmen on the New England circuit. Mr. Streeter goes around with a stove catalogue under one arm and a copy of Victor Hugo under the other. Some standard work beguites many a watting moment and the information absorbed is sometimes given out to the advantage of the dealer or perhaps to some benighted fellow traveler.

THE ANSHUTZ-BRADBERRY COMPANY, Pittsburgh, Pa., manufacturers of Tremont atoves and ranges, are directing the attention of the trade to their Tremont Oak parlor stove. This atove is referred to as containing all the latest improvements and is made in either cast or sheet steel body. Attention is also directed to their retort oak stove which will burn slack of any kind. The trade of this firm this aeason in their well-known Tremont furnaces has been the largest of any year since the furnace was put on the market and reports are constantly being received from customers expressing their entire satisfaction with

its operations. This firm are sending out to the trade a foot rule which can be folded up and carried in the pocket. It is intended as an advertisement and will doubtless be successful in fulfilling its mission.

THE KELSEY FURNACE COMPANY of Syracuse, N. Y., issue a phamphlet of 50 odd pages illustrating and describing the Kelsey furnace, which is referred to as the "greatest warm air generator ever produced." The heater is illustrated and described in the early pages of the pamphlet, while the great bulk of the matter consists of testimonial letters from those who have practically demonstrated the merits of the Kelsey furnace.

IT IS SAID that when the Sioux City Stove Works of Sioux City, Iowa, were transferred to the receiver, there were on hand some 5000 stoves of all kinds, with castings enough unmounted to make 2500 more. About one-half of the stoves have been sold and the disposal of the remainder is now in prog-Whether the castings will ever be assembled is unknown, says the Sioux City Journal, but it is probably the only way the receiver will ever realize anything like the full value of the metal. A gentleman formerly connected with the enterprise in speaking to a representative of the paper named about the stove plant expressed himself as follows: "It is a pity that an institution manufacturing such a finished product as that turned out formerly by the Sioux City Stove Works is forced to lie in idle-There are no better stoves manufactured anywhere, no better selling article, than this same Leeds product. But there is little hope of the resumption of the works. It is too big an institution to be successfully operated in Sioux City, and it is so arranged that it must be run full force or not It requires a force of at least at all. 1000 men when in full operation, and should an attempt be made to run it with a reduced number it would only result in loss, as the machinery could not be adjusted to a smaller output than it was originally built for. This is unfortunate. Perhaps if it were otherwise there might be some hope of a resumption, but as it is now the mel-ancholy fact remains that all there is to do is to close out the stock on hand, thus completing the demise of one of the finest manufacturing Institutions it was ever Sioux City's good fortune to

THE PENINSULAR STOVE COMPANY of Detrolt, Mich., are distributing to the trade a printed card as a reminder of their mail order department, together with an invitation to test its efficiency. The envelope sent to each customer contains five envelopes addressed to the Peninsular Stove Company for the purpose of sending in mail orders from time to time.

THE MANCHESTER STOVE COMPANY of Manchester, Ohio, have about completed their new factory building, which, it is stated, will be one of the largest in that section. Employment will be given to 150 men and boys.

A DISPATCH from Lorain, Ohio, to the Cleveland Leader states that the City Council recently voted to accept the proposition of the Cleveland creditors of the National Vapor Stove Company. Under its terms the city will quit claim Its lien of \$30,000 and give the creditors the works, they in turn agreeing to run them two years. The dispatch further states that there is a decided opposition to the act and arrange-

ments have been made to enjoin the Council from carrying out their intentions.

"Hano Me Ur" is the inscription upon a card which reaches us from A. Weiskittel & Son, Baltimore, Md. One side carries illustrations of the Fire King gas hetters, with brief descriptive particulars, a tac simile of the company's trade-mark and their name and address. On the other side we find a number of reasons why dealers should use gas for fuel. The manufacturers request those interested to write for a copy of their new catalogue showing a complete line of gas stoves and ranges.

CHARLES S. PRIZER of the Reading Stove Works, Reading, Pa., is reported in a dispatch from that place to have expressed the following views with regard to the business outlook: "The situation to-day is much better than this time a year ago. All indications point to a sound and steady improvement in business, although there is nothing to warrant an extraordinary increase of trade. This year there is a feeling of confidence and security throughout the country. We are constantly receiving orders from sections with which we did not do any business last year."

AN IMPORTANT NOTICE to the trade has been issued, to the effect that, on October 22, B. M. Nead and J. F. Ray. mond were appointed receivers for the Raymond & Campbell Mig. Company of Middletown, Pa. The receivers will continue the business of the company in all its branches, maintaining the high grade of the different lines of heating and cook stoves, steam and hot water boilers, and operating the machine and foundry department in a way to promptly meet all demands. It will be the aim of the receivers, by promptness in business and in efforts to maintain the reputation of the company for high grade goods, to merit a continuance of the patronage of the trade. The announcement also states that all accounts due the Rsymond & Campbell Mfg. Company are to be paid and made payable to the receivers by authority of the Court of Dauphin County.

THE CHICAGO GAS STOVE MFO. COMPANY have been incorporated at Chicago, Ill., with a capital stock of \$20,000. The incorporators include John S. Bindell, William Laemmer and Cynes Calconer, Jr.

Moore Brothers of Wichita, Kan., made their first cast of stoves on Wednesday, October 17. In the operation the workmen were so unfortunate as to set fire to the building, but with little damage.

THE CLARK STOVE COMPANY, Kansas Clty, Mo., are meeting with a very gratifying demand for the Clark steel range, which they manufacture. A feature of the range is a gasoline attachment, which can be easily taken off and replaced, enabling the atove to be used in summer with gasoline as a fuel and in winter with coal. We understand that the company expect to erect in the near future a large factory building.

THE CANFIELD STOVE COMPANY of Rondout, N. Y., make use of a number of verses in their advertisement in a local paper to call attention to the lines of stoves which they handle. In the list we notice Argand, Gold Coin and Red Cross stoves.

IN SPEAKING of the business situation George L. Farwell, president of the St. Paul Stove Works, St. Paul, Minn., said to a representative of a local paper:

"Collections are good and business is much better than was anticipated for the time of the year. We are doing half again as much as last year, and even more than two years ago. In North Dakota, especially, our lignite using stoves are in great demand. The outlook is flattering. There will be, I think, frequent orders for small lots—a safe and profitable method."

S. OBERMAYER COMPANY, with factories at Cincinnati, Ohio, Chicago, Ill., and Larsmer, Pa., arc distributing a folder relating to Ticeoleum pattern dressing. This is intended for use in connection with iron, brass, composition, metal and wood patterns, the claim being made that it will not gum up the patterns and will not allow the pattern to rust. Directions for using Ticeoleum are given together with prices.

THE MICHIGAN STOVE COMPANY disposed of a valuable piece of property last week. They sold the building at 8 to 12 Washington street, Chlcago, to John B. Drake, one of the owners of the Grand Pacific Hotel. The building is 811 x 120 fect, seven stories high, not including the basement, and was occupied by the Michigan Stove Company for several years in conducting their Chicago branch. They removed from it to Clinton street, between Van Buren and Harrison streets, to secure a more suitable location for conducting their business, renting the building at a very handsome rate to a furniture company. The investment in the building was very profitable. The company paid \$135,000 for it in 1885 and are now reported to have received \$300,000. This is the largest sale of real estate in Chicago for months.

#### SCRAP.

(Continued from page 57.)

of the Creacent Sheet & Tin Plate Company are at 312 Perry Payne Building, Cleveland. The officers of the concern are: President, H. P. Macintosh; vice-president, B. F. Arthur; secretary and treasurer, J. A. Matthewa; and superintendent, James Paton.

THE BEAVER TIN PLATE COMPANY have been organized and will erect a six-mill plant at New Lisbon, Ohlo. The main building will be of brick, three atories high and 180 x 120 feet superficial area. The contract calls for the completion of the building late in December and operations are expected to be commenced about February 15, 1895.

THE TIN PLATE WORKS of the United States Iron & Tin Plate Mfg. Company, at Demmler, Pa., will, it is stated, resume operation at once, after an idleness of some weeks. It is announced that a sharp reduction will be made in wages, amounting to 25 per cent. in the case of the heaters and 30 per cent. in the rollers' wages.

THE LLANGENNECH TIN PLATE WORKS of Thomas William, at Llangennech, South Wales, will start up again shortly, after a prolonged term of idleness.

Said a member of one of the largest New York tin plate importing houses a day or two ago: "In my opinion the present is an excellent time for buying tin plates. Prices on the other side have sagged off again to nearly the lowest figures touched this year, and the Welsh makers appear to have lost the small advances they secured lately. This condition is not, however, likely

to continue long, as stocks of plates at British shipping points have been very materially reduced during the past menth, and stocks in this country are unusually small. Cargoes as they arrive go into consumption straight way, and but a very small proportion of imports go into stock. Meanwhile, although production in Wales is increasing to some extent, it is not doing so in proportion to the increased consumption both in this country and in other markets; and it is likely that there may be a general scarcity in some lines of plates before long. Indeed, such scarcity has been experienced here in respect of one or two well-known brands within the past week, and it still exists. No less than four brokers have been to my office this morning inquiring urgently for a certain largely used size and quality of charcoal tin, of which the market seems bare, but we had none to give them. And this has been the case with some other staple lines. These who buy plates now are, I think, likely to get their goods cheaper than they will be able to buy them again for some time to come.

THE A. GARRISON FOUNDRY COM-PANY of Pittsburgh shipped last week the balance of the equipment for the new sheet mills of the Pittsburgh Tin Plate Works, at New Kensington, Pa. This new plant is most complete in design and will be put in operation at an early date.

## The Indiana Gas Belt.

A representative of The Metal Worker last week enjoyed the privilege of a flying trip over a large part of the natural gas district of Indiana. It had been some two years since his previous visit to that section, which was made at a time of great prosperity and manufacturing activity, and there was consequently a keen desire to see how the district had fared under the wave of depression which rolled over the country in the intervening period. The comparison now to be made is by no means discreditable. The depression is rapidly losing its effect so far as this district is concerned. A pleasing bustle of reviving activity pervades the whole section. Here and there a manufacturing plant can be found that is running with a light force, but they are exceptions and in every case special reasons exist. New enterprises are springing up, some of which are of great extent and are calculated to bring increased prestige to the State and district.

#### Municipal Improvements,

Referring to the towns themselves, a few remarks will not be out of place. Those who have not visited these towns for two or three years will be interested in knowing that almost everywhere. excepting the very small towns, of course, municipal improvements have been made which contribute vastly to the comfort and healthfulness of citizena and vlaitora. Sewers have been laid, streets nicely paved, sidewalks improved and street car facilities wonderfully extended. The sewers have enabled sanitary plumbers to ply their vocation with much greater satisfaction. The visitor perceives this in the excellent toilet facilities now provided in the hotels of the district. The primitive arrangements of a few years since have been displaced, even in the small towns, by the same conveniences to be met with in good sized cities. Turning to the Improvements in street pav-

ing, the writer recalls an experience ln Anderson not very long since, when the streets were almost impassable in the spring on account of the deep mud. Now there are many miles of streets paved with brick, making the leading thoroughfares as fine and cleanly as can be found in any other city and wonderfully improving the appearance of the place. This work is being pushed still further, and the other gas belt towns are determined not to be outdone and are making corresponding improve-ments. This is a strong evidence of prosperity in itself, as a poverty stricken community may detest mud and filth but must endure them until the means are forthcoming to make the necessary changes. Electric street car lines abound and the service appears to be well patronized. Their accommodations are highly appreciated by those who have business with the manufacturing establishmeuts, as the utmost ingenuity seems to have been exercised in these Indiana towns in placing such institutions as far apart as possible. comprehensive scheme is now contemplated in this line, on which work may yet be started this year. It is to connect all the leading cities in the gas belt by an electric road, which will at the same time furnish street car service to the small towns intervening. Although the territory now is quite well supplied with steam roads, yet the passenger service is limited on each, and the trains are not always run at the most convenient time in the day for the traveling public. The interurban line will not only overcome this trouble but will undoubtedly prove an important factor in building up the small towns. brings up the question of the future of this section as a manufacturing district, its prosperity thus far having been based on natural gas.

#### The Future of the District.

Any one who will take the trouble to consider the geographical situation of this district cannot fail to be impressed by the fact that it is centrally located with respect to numerous great mar-The manufacturers of Indiana might be considered as too far west to catch much of the trade of the East, with so many competitors in the intervening territory, but nevertheless they enjoy a fair share of Eastern business. They are within easy reach of the large cities on Lake Erie, and close to Chicago and the Mississippi River cities, while they are specially well favored in their proximity to Louisville, one of the great gateways to the South and its growing trade. Numerous railroads traverse this section, several of the leading trunk lines of the country having built through it long before natural gas was regarded as a practicable fuel. Local roads and feeders of the trunk lines supply almost every nook and corner of the district with transporta-tion facilities.

The utmost care has been taken to husband the gas supply. The extravagance of other gas districts and the rapid exhaustion of the supply have been a warning to Indiana manufacturers, and they are heedful of the lesson. No indications are at present perceptible of a diminution in the supply of gas, and it is expected to hold out for years to come. If it should be exhausted, abundant supplies of high grade coal are near at band, as well as a great oll field, which has thus far merely been exploited to determine its extent, but has not been seriously drawn upon. Manufacturers and business men are therefore confident that

they will be able to permanently maintain any vantage gained through the powerful impetus of free gaseous fuel.

#### Inducements to Manufacturers.

One might suppose that by this time the peculiar advantages of the district would be relied upon for industrial growth. But inducements are still being offered to manufacturers to locate In this territory. Anderson has done a great deal in this line of late, a cash bonus being pald in addition to a free site and free natural gas. Other towns have also secured important factories, whose owners deem it desirable to obtain greater advantages in manufacturing cost in order to meet the low selling prices now ruling. Marion has been worsted in endeavoring to influence some of these new comers to locate there, because the town was without a fund from which to pay a cash bonus, and the citizens are now raising \$50,000 as a starter. They expect with this amount to be able to enter the race and accomplish important results in further building up their manufacturing industries and increasing their working population. The wisdom of this method of forcing the growth of towns has been often and severely criticised, but it nevertheless goes on and will be continued. It has undoubtedly worked well when managed by prudent business men who exercised scrupulous care in selecting the recipients of their favors. With all the ients of their favors. natural advantages offered in this district, it would by no means have attained anything like its present importance in manufactures if additional inducements had not been offered.

#### Tin Piate Works.

In writing of the natural gas district of Indiana the subject of tin plate works comes in the foreground, as so much progress has been made there in this line and further developments are to be expected in the near future.

The American Tin Plate Company, at Elwood, have the largest plant. works have been very successful, and until the controversy over wages came up as a result of the late tariff reduction they were run to their utmost capacity. The product of this estab-lishment has thus far been made wholly on orders for special sizes to meet the requirements of large consumers. This class of trade was preferred to the manufacture of standard sizes for job-A new mill, superb in all its bers. appointments, has just been built, but not yet put in operation. It is unusually heavy, to diminish the chance of breakages, and is expected to do fine work, but it will not be started until the wages question is settled. The company will then have ten hot mills, together with the necessary cold mills, shears, doublers, picklers and tinning pots to handle the entire output. present only two mills are in operation, and these are run merely to supply a few customers who depend solely upon the Elwood Works for their supply of tln plates. It is the opinion of President W. B. Leeds of this company that the manufacture of tin plates should be conducted separately from the manu-facture of merchant sheets in order to attain success. The discipline of a tin plate factory is necessarily much more rigid than that of a sheet mill. atage of the operation must be most carefully conducted in order to secure high quality in the finished tin plate, and quality must be the objective point to insure commercial success. The Elwood plates under his watchful care

have already attained a high reputa-

The Morewood Company's plant, at Gas Clty, is next in importance. have six hot mills, with foundations laid for two more mills which are shortly to be added. This plant is also run largely on orders for special sizes of tin plate. Thus far over 50 different sizes have been made. This would appear remarkable if the fact was not known that Morewood & Co., in Walcs, have considerably over 300 sizes passing through their books. The Gas City Works make three kinds of terne plate in addition to tin plate. One of these is hand dipped, having a very heavy is hand dipped, having a very heavy coating, another is finished with a mottled surface by the company's own process, and the third has a plain surface. The most rigorous methods are pursued in these works to secure the highest quality possible, thorough inspection following every step in the progress at the steel through step in the progress of the steel through the works. As an instance of the con-omy practiced in these works the fact may be mentioned that the dross from the tinning pots is collected and smelted in a special furnace, by which all the metal is saved except an almost infinit-esimal part. This plant was in full operation under an agreement with the workmen to take whatever wages might be agreed upon at other mills.

The Irondale Steel & Iron Company's plant, at Middletown, is the third fully equipped mill in the field. Up to the past week this mill has been running on black plates only, under a contract taken some time since. Two hot mill were in use. Four more mills are now being added, together with the necessary auxiliaries, and they will probably be ready for operation during the coming month. The tinning house is completed and some of the pots are in place, which are probably turning out tin plate by this time. This plant has been very substantially constructed, the mill building being of steel covered with corrugated roofing and siding, while the tinning house is built of brick and iron, the entire works thus being fire proof. The plant is well arbeing fire proof. The plant is well arranged, all material constantly passing forward until it reaches the shipping department. It is located on the Richmond division of the Panhaudle Railroad, from which tracks run into the mill. The company have carefully guarded their interests in the matter of fuel by leasing gas rights in the surrounding territory for a long distance.

New black plate mills and tinning plants are in course of erection at Atlanta, Montpelier and Anderson, but it will be several months before any of these are ready to roll. A new plant is talked of at Elwocd, and one is mentioned in connection with Alexandria.

The tin plate industry has called into existence also a class of manufacturers to furnish tinning machinery. The Elwood Iron Works at Elwood, Ford & Donnelly at Kokomo, and the Anderson Foundry & Machine Company at Anderson are all engaged in the business of making tinning pots and rolls, pickling machines, annealing boxes, floor plates, &c. All of them seem to have considerable business of this character.

The general freight agent of the Pennsylvania Railroad system west of Pittsburgh states that the freight traffic on his lines is steadily increasing, and the demand for empty cars is becoming so urgent that there are hardly any available on the system at present.

# TRADE REPORT.

## Metal Market.

Pig Tin .- Prices in the wholesale market have dropped again during the week, and not a little Tin has changed hands, both for prompt and later delivery at the lower rates. There has not been as much business this week as there was last on speculative or other account. Evidently many jobbers and count. Evidently many jooders and large consumers who purchased liberally at about 15 50¢ have enough stock to meet pressing wants and something to spare. It any event they do not figure as liberal buyers at the present time and values have little support aside from what comes through covering of short sales or speculative manipulation. The market, in fact, still appears to suffer from the weight of abuormal heavy supply, due chiefly to the syndicate attracting supplies from primary points and incidentally getting more than average supply into the hands of jobbers and consumers. Late in the week the market stillened somewhat, but closed tame. For small lots of Straits Pig jobbers' prices remain at about 174¢ % lb, Bars being about 1¢ % lb above that figure.

Copper.—No change of importance has taken place. Business is moderate, since consumers are being supplied to a great extent through deliveries on old contracts. There is no pressure to sell, but enough stock is offered to keep prices rather easy, the ruling rate for small quantities of Lake Ingot being  $10\frac{1}{2}\phi \approx 1$ b.

Sheet Copper.—The business passing in Sheet and other manufactured Copper is almost wholly confined to comparatively small lots for present needs. Very little has been done in the way of contracts of any magnitude for either spot or future delivery. Inquiry is fair and prices on their old level. Small jobbing lots of Sheet Copper are quoted on a net basis of 15¢ ? lb.

Pig Lead.—Business during the week has not exceeded very moderate proportions. The current demand is light. Consumers' views of prices usually fall about  $0.10\phi$  below those held by sellers, consequently buving has been tame. Prices for small lots of American Pig from store are rather weaker and are now quoted at  $3\frac{1}{2}\phi$  @  $3\frac{3}{2}\phi$   $\frac{3}{12}$  lb.

Lead Pipe and Sheet. — Business does not expand to any appreciable extent, but is, if anything, rather quieter than it was last week. Such orders as are being filled are mainly for small retail lots for current use. Nor does the immediate outlook appear promising, either for better prices or more trade. Reference is made in another column to the reduction in manufacturers' prices on Tin Lined Pipe, &c., in this market. Sheet Lead remains at the former list price of 61¢, and Lead Pipe at 5½¢, with 20 % discount.

Spelter.—Transactions here are on a moderate scale, and the demand continues light. For small lots of Western jobbers ask 41¢ ? lb. Special brands bring about the usual premium.

Antimony.—Offerings have been free and sufficient to carry wholesale prices aomewhat lower. Small retail lots, however, are unchanged at last week's quotations.

Nickel.—Quotations for small lots are about  $42\phi$   $\tilde{t}^{\beta}$  lb.

Tin Plate, - Very little business has been done in the way of heavy orders for either prompt or future deliverles, but numerous purchases of moderate sized lots of Plates have in the aggregate made up a very fair volume of business. It has not, however, been quite up to the standard of the past few The bad weather experienced in the earlier portion of the week appears to have reduced the demand for Roofing Plates to some extent. Buying is still for the most part limited to moderate quantities for present consumption, and notwithstanding the recent reductions in prices large consumers seem to be utterly indifferent in the matter of laying in stocks. The consumptive demand is nevertheless large enough to absorb almost all the shipments of Plates as they arrive. Stocks of imported Plates do not increase at all, and in some lines there is a decided shortage, particularly la special sizes of Charcoal Prices are somewhat irregular, Tins. and while higher in the case of certain scarce brands, lean on the whole in buyers' favor. The output of domestic Plates is still restricted by the continued idleness of many of the American works, owing to the unsettled wage dispute. The market for American Ternes is good and stocks of these Plates on hand are not excessive.

A special London cable dispatch of October 31 to The Iron Age reports on the British Tin Plate market as follows: Tin Plate market has been dull and prices are weak, owing to increased production. Forward business is restricted by lowness of buyers' offers. Light weights are much cheaper. Swansea quotations are as follows:

Bessemer Cokes, IC	/ @
J. B. Steel Cokes, IC	
Charcoals, IC	/ up.

Sheet Iron.—The demand for both Black and Galvanized Sheets, while hardly up to its recent proportions, is still sufficiently large to keep the mills busy and the prices firm at former quotations. For small jobbing quantities of No. 27 Common Iron the ruling quotation in this market is 2 65¢, and for R. G. Cleaned 3¢. Galvanized Irou in small lots is quoted at 75 and 5% @ 75 and 10 % off.

# Chicago Report.

Scrap.—The demand for Old Material is fair. Cast Scrap is in specially good demand. Dealers quote the following list of buying prices, Chicago delivery:

delivery.	Per net		Per lb
No. 1 Wrought Scrap	87	00.5	
Machinery Cast	'	1 (///	
Matleable Cast		00.6	
Stove Plate (free of burn	t)	1,00	
Rurnt fron and Grate B	ırs ·	3 00	
Sheet Iron and Hoops		00,8	
Plow Steet and Bres	king		
Stook		4,00	• • •
No. 2, such as Shovels, I	Loes <sub>1</sub>	. 00	
X.C		3,00	
Old Boilers—whole (Iron	)	3.00	
" (Iron)—cut in s	ıngie	- 00	
Sheets and Ri		5,00	
Old Gas-Pipe and I	oner	5.00	
Tubes		3.00 - 3.00	
Cast Borings		4.00	
Turnings		7.00	
Horseshoes		1.00	6 ¢
Copper Bottoms			7 ¢
Copper Clips and Heavy			6 ¢
Heavy Brass			3 ¢
Light Brass			21/4
Pipe Lead			-/4 T

Tea Lend	 212€
Muc	 2140
Rubber	 31,26

Anthracite.—Dealers report a continued movement. Prices have been advanced  $25\phi \approx 100$  and a determined effort will be made to maintain the new schedule. Carload lots of 12 net tona or over are quoted as follows:

	Eg	g, Sto.
	Grate. 8	and Ch.
Chicago, Ill	\$5.00	\$5,25
Milwaukee, Wis	5.00	5.25
Kansas City, Mo	8.20	8,45
Council Bluffs, Iowa	8.20	8.45
Lincoln, Neb	8.35	8,60
Sioux City, Iowa	8,20	8,45
Aberdeen, S. Dak	8.25	8,50
Dubuque, lowa	6,30	6,55
Madison, Wis	6.50	6,75
St. Paul, Minn.	7.50	7,75
Burlington, Iowa	6.50	6.75
Des Moines, Iowa	7.95	5,20
Davenport, Iowa	6.30	6,55
St. Joseph, Mo	8.20	8.45
Leavenworth, Kau	8.20	8,45
Omaha, Neb	8.20	8.45

#### Colorado Anthracite.

#### COLORADO FUEL & IRON COMPANY.

Denver	\$8.00
Pueblo	8.00
Colorade Springs	8,00
Leadville	8.00
Cheyenne, Wyo	10.00
All points between Denver and	
Missouri River	8.85

#### CONDITION OF THE

# Hardware Trade.

IN THE hand-to-mouth manner which has become so universal of late a good many goods are going out steadily, but there seems little disposition on the part of either retailers or jobbers to order beyond their immediate requirements. This state of things will naturally continue until prices

have plainly reached bottom.

Advices from Chicago. — October has been a good mouth for Shelf Hardware. Orders were not large, but have continued to come in very freely. The country trade have shown no disposition to anticipate requirements, but the demand from their customers has been sufficiently steady to compel the constant sorting up of stocks. The end of the month compares very favorably with the beginning, and taking the entire period a distinct gain is reported in the volume of business over that of September and very much in excess of that of October last year. Trade would have been still better recently if the weather had been more in accordance with the time of the year, but the temperature has been high and there has been little use for stoves or heating apparatus, and consequently stove furniture and trimmings have been comparatively neglected. Trade in Tinware and Stamped Ware is hampered by difficulty in getting shipments from factories. The impending tariff changes caused fewer goods to be made during the summer and fall, while retailers also held back their orders, so that jobbers are now in hot water trying to supply the strong demand. The same remarks can be made with regard to Tin Plate. Stocks in Chicago are being drawn upon heavily to supply deficiencies at other points in the West. Jobbers have latterly been in receipt of carload orders for Tin Plate, which is something quite unusual. Heavy Hardware is in fair condition, the trade of the mouth being a little larger than in September, but prices on all goods carried in this line are now cut so close that the increased volume is not reflected in augmented dollars and cents.

#### Notes on Prices.

Wire Nails.—If prices were more aettled, the market for Wire Nails would be in a very satisfactory condition. Inculries are numerous and the amount of sales considerable. We have been requested by several members of the Wire Nail Association to contradict the report which has obtained currency in the trade that the association have adopted the Baackes card.

Advices from Chicago.—The altuation is quite perplexing in the matter of quotations. The standard mills are endeavoring to hold up their price for shipments to Western points, but others are making considerably lower rates and thus demoralize the market. It is understood, however, that the low quotations made are invariably for spot cash, which is not specially tempting to those who place orders expecting to draw out in small quantities as they feel inclined to make specifications. Jobbers are quoting small lots from stock at \$1.10, but report that trade recently has not been very active.

Cut Nails.—The market for Cut Nails is quite as strong as at our last writing. While the demand is good, there is active competition for desirable orders. Small lots from store in New York are quoted \$1 to \$1.05, with the usual average.

Advices from Chicago.— Manufacturers report that orders are coming in just as they have been for some weeks, in small quantities, yet with sufficient frequency to keep the local works well employed. Small lots are selling at \$1 from stock.

Barb Wire. — There is little present delivery and the interest in the trade centers in the efforts of manufacturers to secure orders for future delivery. The market is represented by the following quotations on Four-Point Galvanized in carload lots, at the points named: Pittshurgh, \$1.95 to \$2; Cleveland, \$2 to \$2.05; Cincinnati, Allentown, Chicago and New York, \$2.10 to \$2.15.

Advices from Chicago.—Inducements are being made by some of the manufacturers to stimulate the placing of orders for spring delivery. These inducements are not slways in the matter of price, but extend to the enlargement of credits and the dating of bills a considerable distance ahead. It is not believed that this effort has met with much success, as merchants are not yet inclined to load up with goods even if they seem to be cheap. They have had considerable experience of this kind within the past three years, to their regret. The demand for early delivery has been a little better the past week or two owing to the extremely pleasant weather, which enables outdoor work to be proaecuted, and jobbers are also benefited by the increased movement. Small lots of Galvanized from stock continue to be quoted at \$2.25.

Towel Ralls.—The Reversible Polished Brass Towel Rails put on the market by Robert Ferguson, 51 Mercer street, New York, are sold to the trade at \$55 per gross, subject to a discount of 50 per cent.

The Lined and Block Tin Pipe.— Eastern manufacturers have reduced the prices on Tin Lined Pipe to 12½¢ and on Block Tin Pipe to 30¢ † lb. The discount remains unchanged namely, 20 ¢.

The lighting of churches, halls and large rooms has been made a specialty

by I. P. Frink of 551 Pearl street, New York. His Reflectors have been made to use either electricity or gas or both, and have been used, among other placea, in Moody's Auditorium, Northfield, Mass.; First Presbyterian Church, Pine Bluff, Ark.; Sanger Hall, Newark, N. J.; Catholic Church of St. John the Baptist, Brooklyn, N. Y.; Methodist Episcopal Church of Jacksonville, Ill.; Church of St. Francis Xavier, Little Falls, Mlnn.; Presbyterian Church of Vancouver, B. C., and Hasbrouck Institute, Jersey City, N. J.

THE ALBERENE STONE COMPANY, 219 Lake street, Chicago, are to furnish 16 laundry tubs for the new flat building at Groveland Terrace and Fourth avenue.

#### CONTENTS.

,	Editorials: PAG	R.
,	System in the Shop	37
	Convict Labor on Roads	37
	Special Tools and Dull Times	37
1	The Letter Box—	
	An Appreciative Reader	38
	A Thanksgiving Window	38
	How Can Hot Water be Supplied?	38
		39
	A Hydrostatic Question	39
	A Fish Story	
	Cleaning Niekel	39
•	Important Advances in Freight Rates	39
,	The Mechanical Engineers' Test Bars	39
	The Flow of Water and Gases Through	
	Long Pipes	40
		41
	The Parker Portable Heater. Illus	41
	Roofing and Cornice-	
	American Metallic Lath. Hlustrated	42
	Ten-Foot Corrugating and Seaming	
	Machine, Illustrated	42
	Flashings	42
	Steam and Hot Water—	
	The Steam and Hot Water Trade	43
		43
	Heating Notes	
	A Wonderful Record	43
	Heating and Plumbing-New Work and	
	Contracts	44
	Combination Chandelier and Reflector.	
	Illustrated	45
	New Style 50-Inch Power Square Shear.	
ŀ		48
	lilustrated	45
	Shop System of Keeping Track of Sheet	
	Metal Jobs. lilustrated	46
	How I was Cured of a Big Head	48
l	Purity of Air in Cars	52
ĺ	The Work of the Wreekers	52
١		53
l	Garbage Disposal in St. Louis	00
ı	The Retail Store—	
ı	Sweeperettes. Illustrated	15€
l	Berlin Christmas Tree Holder. Illus	54
l	Western Autograph Register	54
l	Battery of Elevated Burton Coffee	
١	Urns, Illustrated	55
ĺ		55
l	New Pipe Damper. Illustrated	55
l	The Western Combination Washer. Ill.	
l	Monarch Can Opener. Iliustrated	56
l	Woodite Ware. Illustrated	58
l	The Bernard Folding Dividers. Illus	56
l	Tin Plates-	
i	Tin Plate Makers' Wages	57
ı	Im riste makers wages 57	
l	Serap 57	, 00
1	Piumbing and Gas Fitting-	.~
١	Public Conveniences	57 56
ł	A Tale of a Ram Traps and Vents	58
I	Trade Notes	59
1	Trade Notes	59
١	Stove Trade Notes—	
l		60
ľ	The New England Stove Trade St. Louis Stove Trade	60
Į	A Chat About Water Street New England Stove Notes	60
1	New England Stove Notes	. 6t
١	The Retort Soft Coal Heater	61
Į	New England Stove Notes The Retort Soit Coal Heater Estate of A. Froellch Southern Stove Works. Gas and Stoves.	62
ļ	Gas and Stoves	62
1	Odd Plates	. 0
١	Odd Plates The Indiana Gas Beit	
1	Trade Report—	
1	74 74	. 65
-	Chicago Report	65
١	Metal Market	66
	Chicago Report Condition of the Hardware Trade Notes on Prices	66
	Metal and Miscellaneous Fricos	. 07
	Labor Exchange—	
	Help Wanted	. 69
	Situations Wanted	. 69

# THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, November 10, 1894.

DAVID WILLIAMS, - PUBLISHER

### BUSINESS OFFICES:

NEW YORK96-102 Reade Street	et.
PHILADELPHIA220 South Fourth Stre	et.
BOSTON146 Franklin Stre	et.
PITTSBURGH Room 509 Hamilton Buildi	ng.
CHICAGO 59 Dearborn Street, cor. Randol	ph.
CINCINNATIRooms 22-24 Pickering Buildi	ng.
ST. LOUIS Bank of Commerce limited	ng.
CLEVELAND	ga.

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

### Examination of Plumbers in England.

Recognizing the necessity for a higher technical training for the members of the plumbers' craft in these days of sanitary science, the City and Guilds of London Institute established a few years ago a system of plumbers' examinations in England, which has evidently been appreciated by the trade, judging by the recently published returns of the institute. shown therein the number of candidates for the certificate of the institute has increased remarkably in the past five years. The figures given are as follows: 1890, 569 candidates; 1891, 684; 1892, 825; 1893, 988, and this year the number has risen to 1253, showing an increase of 265, the largest yet reached. Of these 1253 candidates 652 have passed the required examination, 192 in the honors grade. At the practical examination, which is optional and sufficiently rigorous to demonstrate a high degree of skill in the candidate who passes, 450 candidates presented themselves this year, against 293 last year, and of these 202 satisfied the examiners. Of the 202, 168 also succeeded in the written examination and received the certificate of the Institute. Owing to the large increase in the number of candidates arrangements were made for the practical examination to be held in 44 centers outside of London as against 29 centers in the previous year; and to avoid any failure in the results of the examination, in consequence of a difference in the quality of the material provided for the candidates, all the material, consisting of sheet lead, pipes and solder, was forwarded from London to each center of examination. At each center a local examiner was appointed to superintend and report upon the work of the candidates and at the close of the examination all the work performed was returned to London to be passed upon by

the chief examiner. The amount of material used in this year's examination was 13 tons 12 hundredweight.

Steam Pipe Coverings.

some recent experiments have shown that under ordinary conditions with steam of 80 pounds pressure, 100 feet of naked 2-inch steam pipe will, in the course of a year of 300 days of ten hours each, condense water that has a coal equivalent of 7.7 tons. This, on the exceedingly conservative basis of \$2 per ton for coal, amounts to \$15.40 per year. Further experiments with various types of pipe covering showed that with the best of those tested there could be brought about a saving of no less than \$12.76 upon the length of pipe above specified. The conclusion is evident that good business policy warrants the covering of all exposed steam pipes.

### The Galvanized Iron Trade.

The cheapness of galvanized iron is wonderfully widening its consumption. As it can now be had at as low a price per pound as black sheets of the same thickness were sold only a year or two since, it is being used for almost everything exposed to the danger of rust. Several factors have contributed to the reduction in price, but the most prominent has been the increase in the capacity of the sheet mills of the country and in the number of galvanizing plants. Dnring the past two or three months the anomaly has been witnessed of these works being crowded to their utmost limit of production with only a slight hardening of prices, so slight as to be scarcely worth considering. In ordinary times such a condition of activity would have caused a very stiff advance, and the consumer who had not supplied all his wants for the time would have paid roundly for permitting himself to run short. Perhaps manufacturers were restrained from pushing up prices by restrained from pushing up prices by the fear that the heavy consumption was only short-lived and that there-fore an advance could not be sustained. But the fact that the demand continned for a considerable period, with general business dragging, is a warning to consumers to buy early another year and cover their requirements as far in advance as they can. If not, they will stand in danger of a considerable squeeze should they be forced to buy during the hight of the busy season.

United States Labor Commissioner Carroll D. Wright has lately presented some intereating figures showing the changes that have taken place in the wages of labor in the past half century, which exhibit a remarkable improvement in the condition of the wage earner during that period. He shows that wages were much higher and the cost of living materially lower in 1892 than they were 50 years before. Thus laborers in a New York brewery

received 62½ cents a day in 1840, 84 cents a day in 1860, \$1.30 a day in 1866, and from \$1.50 to \$2 a day in 1891. Carpenters earned from \$1.25 to \$1.62 per day of ten hours in 1840, about the same ln 1860, and from \$3 to \$3.25 per day of eight hours in 1891. Wheelwrights received \$1.25 per day in 1840, the same in 1860, \$2 in 1866, and \$2.50 in 1891. Cotton weavers were paid 62 cents per day in 1840, only 54½ cents in 1860, 85 cents to 90 cents in 1866, and \$1.05 in 1891. Wool spinners received something under \$1 per day in 1840, \$1.05 in 1891.

## The Moral Effect of a Technical Education.

The technical school, says The Iron Age, can scarcely be regarded as a teacher of morals pure and simple, but its influence for good is deep and lasting upon the integrity, sincerity and truthfulness of its students. It is not in human nature to pursue a course of three or four years in such studies as mathematics and the sciences without absorbing some of the spirit of exactness and completeness which governs in every deduction, every theory and every law. The pupil is taught that certain causes must produce certain effects, that in nature there is no actual loss, no return without the requisite expenditure of force or of matter. uisite expenditure of force or of matter. Nature is perfectly honest, there is no trickery, no uncertainty; physical and chemical action must be in accord with nature's laws. We may or may not know them as yet, but there is system, certainly everywhere.

The absolute truthfulness of mathematics, the transformation of work

The absolute truthfulness of mathematics, the transformation of work into heat, and even the mysteries of light and electricity continually lead the student into paths of exactness and train him in accuracy of statement and action. His after life, as engineer, as chemist, as electrician, must of necessity be governed and controlled by the habits thus formed. He feels that his reputation and character depend upon the accuracy of his statements regarding his work. He is chary about expressing opinions that have no substantial foundation. He becomes just in his judgment; it is second nature to him to look at both sides of a question, and he always desires to take an unprejudiced view of the case. In point of fact he frequently becomes so candid and so impartial as to assure his failure as a salesman, and to his credit be it said that he very seldom possesses the qualifications necessary to success where negotiations must be carried on with "boodle aldermen" and stubborn committeemen who yield only to the persuasiveness of the almighty dollar; upon them words of reason and logical argument are worse than wasted.

That the above is a faithful pen picture of all technical graduates can hardly be claimed, but that the influence of his studies may be seen in the later life of any man, and that, other things being equal, he is more sincere, more honest and more just than he would have been had he not pursued a technical course, cannot be questioned.

# THE LETTER BOX.

### Sheet Metal Launch.

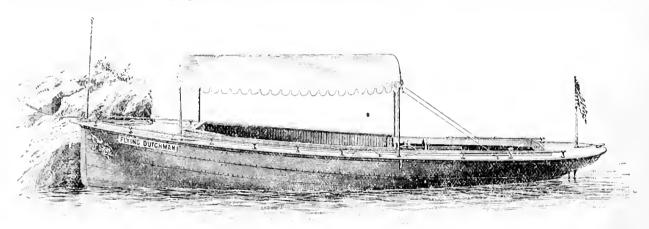
From Louis Giclas, Washington, D. C.—I like the Letter Box, but would rather read it than write for it. However, if every one followed this idea there would be nothing to priut, so I send you my contribution. I built a steel launch last winter in my spare

which is formed of angle steel. The sheathing is fastened to the ribs with cleata riveted on each side, as shown in Fig. 3. By referring to Fig. 2 the construction will be understood. There a section is shown through the keel with its covering and the additional strip on the bottom. Where the keel covering joins the sheathing it is nailed

ignite the charge. The boat will easily run 7 miles an hour. I worked 40 days in building the "Flying Dutchman," and I had about that amount of pleasure with it this season.

### Capacity of Flaring Vessels.

From C. A. M., Scranton, Pa.—Please publish in The Metal Worker a method



Sheet Metal Launch.-Fig. 1.-General View.

hours, and after running it all the season I am very well satisfied with it, so much so that I think many in the trade will be interested in it. I send you a photograph and a sketch which will give a good idea of it. In Fig. 1 a general view of the launch is shown, and ln Fig. 2 there is a sectional view showing the construction, Fig. 3 illustrating the method of fastening the sheathing to the ribs. The length of the launch is 21 feet by 4 feet 6 inchea beam and 2 feet 6 inches depth smidships. The draft is 10 inches at the bow and 19 inches aft. The ribs are \(\frac{6}{2}\)-inch T

and soldered. The clests are also indicated and likewise the method of fastening the ribs and angle steel gunwale. The ribs do not follow the side but cut across the oak timber. The cleats, which are  $\frac{\pi}{4}$  inch wide and  $2\frac{\pi}{2}$  inches long before being bent, are made of No. 20 galvanized steel and put astraddle of the ribs and riveted on each side, as in Fig. 3. The seams of the shesthing are riveted  $1\frac{\pi}{4}$  inches apart and soldered on the outside, making a perfectly tight shell of No. 20 galvanized steel. I have air compartments for buoyancy, and as the motor

of finding the number of gallons that a flaring vessel will hold; also knowing the circumference and the contents of the vessel, to find the hight? For instance, I want to make a 2-gallon measure, with top and bottom diameters of 6 and 8 inches, respectively. How will I find the hight?

Answer.—The rule for finding the contents of a flaring vessel is to add together the squares of the two diam-



Fig. 3.—Detail of Fastening.

eters and the product of the two dismeters and multiply the sum by one-third the perpendicular hight, and that in turn by 0.7854. The result will be the contents in cubic inches. To find the cspacity in gallons divide this by 231. This is in answer to our correspondent's first inquiry and from it we have deduced a second rule for finding the hight when the two diameters and the capacity are known. Multiply the capacity in gallons by 45,000 and divide it by 51 times the sum of the squares of the upper and lower diameters and of the product of the two diameters. To illustrate this by solving the problem that our correspondent has forwarded, we have to read as follows: Hight equals 45,000, multiplied by 2, which is the capacity in gallons, and divide this by 51 times 36, which is the square of 6,

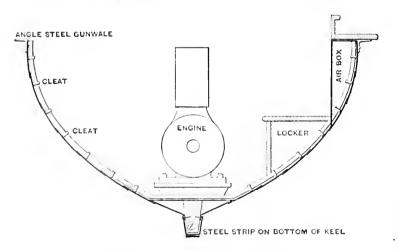


Fig. 2.—Cross Section through Boat.

steel set 12 inches apart. The atem and stern post are of white oak, as is also the keel. The sheathing is put on lap stresk in widths of 5, 6 and 7 inches, and is hammered to the proper curve. The ribs have no holes in them except at the keel and at the gunwale strip,

and all the machinery only weighs 375 pounds it is not a difficult task for it to float. The position of the air compartments is indicated in the sectional view, Fig. 2. The boat is run by a 2 horse power gasoline vapor engine, which employs an electric spark to

the smaller diameter, added to 64, which is the square of the larger diameter, added to 48, which is the product of the two diameters. The sum of these three is 148. Therefore we have, the hight equals 45,000 times 2, or 90,000, divided by 51 times 148, or 7548. Making the division, the answer will be found to be 11.92. Our correspondent will see, therefore, that 12 inches for the hight of his vessel is very little out of the way.

### An Unsatisfactory Furnace.

From "T. O. M.," Adams, N. Y.—
Noting the inquiry of "C. F." and the comment upon it in The Metal Worker of October 20, would say that having had an experience of 20 years in the furnace business, I think it is probable that the reason the furnace does not work is given in your last suggestion, that the air already in the room must be got out before the heated air can enter. It is very likely that some of the rooms are better heated than others because there is an escape of air from the room corresponding to the amount of hot air that enters through the register. Connection with the cold air box in the hall as suggested will help, provided the rooms all connect with the hall and the doors are kept open, otherwise only the hall will be benefited. Only by some sure way of ventilating can the furnace be made to give good results.

From E. F. J., Baldwin, Kan.—I took up my Metal Worker of October 20, and noticed in the Letter Box the trouble reported by "C. F.," and as I have been there I know how to feel for him. According to the plan, the dining room is No. 1, but in the state ment it is mentioned as No. 3. Which is right? "C. F." faile to state why he put a cold air duct away around to the west, when he could have taken it from the north. He says that the furnace is large enough and that the draft is good, which is half the way to success in any furnace job. In seeking for the trouble I looked first at the air supply and think there is some fault. The supply for ordinary short work is sufficient, but the turn, although not a direct angle, is sufficient to cause a considerable check to the force of the supply. Second, I think it should be supply. one-third larger at least. As the furnace is set now it would be some trouble to change everything, and un der the circumstances I would lower the furnace so as to give at least twothirds more pitch to the pipes. I would take a 12-inch cold air pipe from the hall, near the front door, and also from the dining room in some convenient place and return to the furnace, fixing a shield to prevent the cold air from coming up to the pipe from the main air supply. The job should then give fair results, but it would work better if he had used 12 inch pipes for Nos. 1, 2, 3 and 6, and a 10 inch pipe for the hall. It might seem queer to some to have a 10 inch pipe in the hall for hot air and a 12-inch pipe for cold air, but I am calculating that the parlor door will be open a good share of the time to the hall. On account of the length of pipe No. 4 I would make it 10 inches also. I think it is not good policy to use less than 12-inch pipes on the first floor living rooms. I trust that my suggestions may prove of some help.

Note.—An error occurred in statement of "C. F.," as printed, and instead of reading No. 3, it should read No. 1

### Strength of Pipes.

From D. F. J., Charlestown, Mass.—Will The Metal Worker please inform me how to ascertain the pressure that can be safely carried by lead, brass, iron and cast iron pipe? I would like to have some rule for making a calculation that I can use as a guide to the strength of pipes. What rule could I use for calculating the pressure at different points on a soil pipe, 100 feet in hight, that is filled with water, and would the same rule apply for all sizes of soil pipe? How many square linches of internal surface are there in a cylinder 24 inches in diameter and 42 inches long?

Answer.—It is strange that no tables exist in the handbooks giving the information sought by this correspondent. In The Metal Worker, February 28, 1891, this omission was commented upon in reference to copper pipes. The following table is issued by Tatham Brothers, New York, giving pressures under which their lead pipe may be used with safety, though a much higher pressure would be necessary to burst it:

Table Showing the Weight of Lead Pipe Which Should be Used for a Given Head of Water.

ımber all.	per ich.	Cali	Caliber and weight per foot in pounds.										
Head or number of feet fall.	Pressure square in	Letter.	3% inch.	½ inch.	% inch.	34 inch.	1 inch.	] 13,4 inch.					
30 50 75 100 150 200	15 25 38 50 75 100	D C B A AA AAA	10 oz 12 oz. 1 114 116 134	3/4 1 11/4 13/4 2 3	1 11/2 2 21/4 23/4 31/2	114 134 214 8 316 494	2 216 314 4 434 6	21/2 3 33/4 43/4 53/4					

We learn from one manufacturer of brass pipe that they have no table of the atrength of brass pipe and no knowledge of such a table being in existence, but pipe to stand a stated pressure is made when ordered. The American Tube Works, Boston, in their circulars guarantee brase pipe of iron pipe sizes to stand a hydraulic pressure of 1000 pounds to the square inch, and show a sample that is said to have been burst by a pressure of 3500 pounds. tables issued by the makers of iron pipe state that 1-inch pipe and smaller will carry a pressure of 300 and 11-inch pipe and larger will stand a pressure of 500 pounds to the square inch. For cast iron soil pipe no pressure is guaranteed unless "tested" pipe is specially ordered. This is due to the liability of a core to shift in the mold and make one part of the pipe thicker than another and to the probability of sand holes, though an opinion seems to prevail that extra heavy soil pipe will carry a presaure of 50 pounds readily. Extra heavy soil pipe has been sold by the Monitor Iron Works, New York, that has been

tested up to 100 pounds pressure and in some cases as high as 200 pounds. An advanced price is charged to cover the loss from bursting and the labor of making the test. A pressure of 500 pounds has been withstood for experiment by selected extra heavy soil pipe. The following rule for calculating the bursting pressure of pipes of different metals is based on their tensile strength: It is well never to earry a pressure over onehalf and it is better not to exceed onequarter of the bursting pressure for regular use. Multiply the tensile strenth of the metal per square inch by the thickness of the wall of the pipe in inches and divide the result by the diameter in inches, and the result will be the bursting pressure. Then divide the bursting pressure by four, and the result will be the pressure that may be safely carried. A safe estimate of the tensile strength of lead as used in pipes is 2000 pounds; of brass, 23,500 pounds; of wrought iron, or more correctly speaking, steel, 50,-000 pounds, and of east iron, 18,000 pounds. The strength of 4 inch cast iron soil pipe would be calculated thus, assuming the walls to be 1 inch thick:  $18,000 \times \frac{1}{4} = 1125$ , which divided by

4, the factor of safety, gives 2811 pounds. Stacks of soil pipe 210 feet high have stood the water test without leaks, and in a stack 256 feet high only a few pieces had to be removed owing to sand holes. The condition of the iron when poured and the position of the core in the mold play a very important part in the atrength of soil pipe; consequently, unless the pipe has been tested, it will be unsafe to rely on any calculation. The pressure in square inches exerted by water on a pipe of any size at any point is found by multiplying the number of feet between the given point and the top of the water column by 0.434, or a thumb rule le that a column of water increases in pressure per square inch 1 pound for each additional foot in hight, and to divide the hight of the column by 2 gives the pressure in pounds. By the thumb rule the pressure on the soil pipe mentioned, 100 feet, would be 50 pounds and the exact pressure would be 43.4 pounds.

The surface of the cylinder is calculated by multiplying its length by its circumference. The circumference is found by multiplying the diameter by 3.1416. To answer our correspondent's last question, therefore: 24 × 3.1416 = 75.3984 × 42 = 3166.7328 square inches of internal surface in the cylinder.

Water Front Hinders Baking.

From S. & S., Massachusetts—We have lately placed a water front in a No. 8 range and connected it with a 40 gallon boller in a room just over the kitchen. Our customer now complains that the range will not bake nor can they get up fire enough to do any work

with. Will some reader kindly advise us what is the best remedy to apply to this case. Would a coil do the work better and allow the oven to be properly heated? The fire box is as large as found in any ordinary range having a water front connected with a boller of the size mentioned and the range has always worked satisfactorily heretofore.

Note.—We trust our readers will respond to this appeal which is made to them. A diagram accompanied this letter, but as the piping was in no way responsible for the trouble it has not been reproduced.

## Circumference of a Stove Coilar.

From C. A. M., Scranton, Pa.—Please tell me through The Metal Worker how to find the circumference of an oval such as a stove collar, 6 inches long and 3½ inches wide; also publish pattern for flaring furnace pipe elbow.

Answer .- The oval of a stove collar is not an exactly definite shape, but for the purpose it may be considered as two semicircles at the end, connected by atraight lines. To find, therefore, the length of the stove collar, we must add together twice the semicircle at the end, which is equivalent to the circumference of a 31 inch circle, and add to this twice the horizontal distance. This horizontal distance will be equal to the difference between 6 inches and the two radii at the ends of the oval, which together will be 31 inches, so the flat part is 21 inches. Double that is 5 inches, and added to the circumference of a 31inch circle, which is obtained by multiplying  $3\frac{1}{3}$  by 3.1416, or 11 inches, the result will be 16 inches.

In answer to our correspondent's inquiry about the pattern of a flaring furnace pipe elbow, we would say that this is a problem that has been treated in "The Metal Worker Pattern Book," in one way or another, and as that may meet his requirements, we would refer him to Section 516, page 137, and Section 117, page 129, of that work. If these cases do not meet our correspondent's wishes, we would be glad to have him communicate with us again.

### Some Kitchen Boiler Questions.

Hrom E. R. B., Lexington, Ky.—We have an argument in our shop regarding the heating of an ordinary 52-gallon range boiler with a pipe coil, and would like the opinion of The Metel Worker and its readers. The questions are: 1. The surface exposed to the fire being the same in square feet, which will heat the water the quicker, 1-inch or 1½-inch pipe, the 1-inch pipe not taking up so much space and leaving more fire room? 2. What difficulty, if any, would be found in a range boiler connected directly with city pressure as regards rapidity of heating? Last, in piping a boiler one of our men ran the pipe that returns from the water back so that it was connected both at the side of the boiler and at the hot water service pipe at the top of the boiler, claiming that it would heat the water quicker and that hotter water could be drawn from the

boiler than in the usual way before the entire quantity was heated.

Answer. - In answer to the first question would say, that all conditions being equal it is probable that the 1-inch pipe would heat the boiler quicker than the larger pipe, as there would be a smaller quantity of water brought in contact with the heating surface in the same length of time than would be the case with the larger pipe, consequently it could not pass through the pipe without being thoroughly heated. answer to the second question, pressure adds no difficulty to the heating of water, although it is a well-known fact that under a low pressure, or atmospheric pressure, water boils at a temperature of 212° at the sea level, but on a higher level, where the atmospherie pressure is reduced, water will boil at a lower temperature, and water under pressure requires a higher temperature to be brought to a boiling point. The boiling point in these different cases varies and may have led to the conclusion that the pressure interferes with the heating of the water. In reference to the third question, this method of piping the boiler was discussed in The Metal Worker in the apring of 1893, and the correspondence will be found in our book called "Kitchen Boiler Connections," With this method of piping and a boiler full of cold water, the water that is heated by the water back is discharged directly into the hot water service pipe at a higher temperature than if it entered the boiler at the side and passed through the body of cold water before reaching the service pipe. Some plumbers use a stop cock on the pipe leading to the side connection to the boiler between the branch that leads to the pipe of the boiler and the boiler.

### A Cracked Bell.

From C. E. M., West Branch, Iowa.—
I would like to hear from the readers of The Letter Box of The Metal Worker if they have had any experience in mending cracked bells. We have a 34-inch bell that is cracked up about 8 inches, and when hit with a hammer it seems to ring clear enough, but when struck with the clapper it sounds cracked. It is a stationary bell, bolted to a frame, with an iron plate between the bell and wood. Would any benefit arise from sawing up the crack with a hack saw?

### An Improperly Shaped Flue.

From C. H., Ohio.—I should like to learn through the columns of The Metal Worker of a remedy for the following trouble: I have a steam boiler connected by means of a 12-inch smoke pipe with a chimney which is triangular in shape, the triangle being about 2 feet on each side, which forms very sharp corners. The chimney is about 75 feet high and it does not seem to draw very well. When the feed door is opened the smoke puffs out even when the direct draft of the boiler is open. I would like to know if a satisfactory draft would be established by using a 12 inch pipe made of No. 20 gaivanized iron to run up the chimney to a point about 1

foot above the top. Would such an arrangement give the desired draft? I would like to hear from my fellow tinners and plumbers on this question.

### Norton Brothers' New Factory.

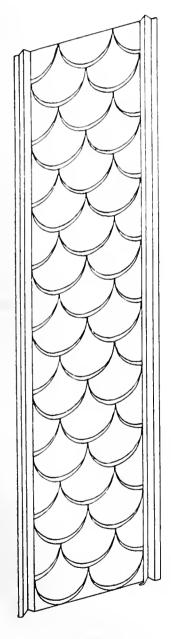
Norton Bros. of Maywood, Ill., dedicated their new tin can factory on the evening of the 1st inst. This factory has been built to take the place of the one on River street, Chicago, which was burned on February 19. It will be used for the manufacture of all kinds of tin packages, plain and decorated, and of any size or shape. The building is a brick structure, two stories high and 250 feet square, erected almost without regard to expense so as to embody the most perfect labor saving devices and at the same time provide the workmen with the highest comforts and conveniences. It is pronounced one of the finest factories now in existence by those competent to express an expert opinion. The dedication of the building was made a gala occasion for the employees and residents of the vicinity. A short programme of exercises was prepared, as follows: Tender of the building by the architect, F. R. Schock; building by the architect, F. R. Schock; acceptance by the president, O. W. Norton; "Maywood of the Past," Harrison P. Nichols; "Maywood of the Present," Gen. Wm. Sooy-Smith; "Maywood of the Future," H. F. Frink; "Retrospective and Prospective," Edwin Norton; "Our Health, Our Wealth and Our Happiness," Samuel Fox an employee. In his ad-Samuel Fox, an employee. In his address Edwin Norton referred to the fact that in the quarter of a century of the firm's existence as manufacturers they had never had a strike. He also stated that in the months of July, August and September the tin plate factory connected with this plant had turned out over 9,000,000 pounds of the finest quality of tin plate. As an evidence of the kindly feelings of the employees toward their employers, Mr. Fox at the conclusion of his remarks presented a testimonial of esteem signed by the employees and engrossed on parchment in the works. Dancing followed, after which a generous collation was served. The chronology of this company is as follows: 1868, business established in Toledo, Ohlo, as and engrossed E. Norton; 1870, firm changed to Norton & Fancher; 1871, removed to Chicago, office and factory at 63 and 65 South Canal street; 1873, opened office at 10 State street, firm changed to Norton Brothers; 1874, removed office and factory to 44 and 46 River street; 1885, opened factory at Maywood; 1890, in-corporated under style of Norton Brothers, commenced manufacture of tin plate; 1892, built present tin house and each weight foundry; 1894, River street factory destroyed by fire February 19, opened offices in Masonic Temple, February 20; opened warehouse, corner Sixteenth and Johnson atreets, April 1; opened new factory at Maywood, November 1. The directors of the company are Oliver W. Norton, Edwin Norton, Henry M. Norton, Horatio N. Norton, Lawrence A. Norton, Henry F. Akin and W. L. Gifford. The officers are as follows: Oliver W. Norton, president; Edwin Norton, vice-president; W. L. Gifford, secretary, and O. P. Swift, treasurer.

Improvements to the water works aystem of Minneapolis, estimated to cost over \$1,000,000, are recommended by the City Engineer, and will probably be undertaken.

## ROOFING AND CORNICE.

### Bischoff's New Roofing.

The illustration herewith given shows a new style of roofing which has been placed on the market by Fred. F. Bischoff of Libertyville, Ill. This roofing is pressed in sheets 1 foot 9 inches wide by 8 feet long, with a lock joint on each side which will do away with



Bischoff's New Roofing.

the standing seam and hammering. With the new machinery which Mr. Bischoff has recently placed he is able to sell this ornamental style of roofing as cheap, if not cheaper, than plain roofing. A new departure in the sheet metal line, also just brought out, is a metallic coffin. He has also just issued a new ceiling catalogue containing 118 designs.

### FLASHINGS.

J. K. Smith, Waterbury, Conn., has the contract for putting a slate roof on the new German Lutheran Curch at Torrington.

A CERTIFICATE of increase of their capital stock from \$200,000 to \$450,000 has been filed with the Sceretary of State of New York by the T. New Roofing & Mfg. Company of New York City.

THE CAPITOL CITY ROOFING COMPANY of Hartford, Conn. have just completed the roofing of the bulldings of the Sterling Silver Works, at Glastonbury, and have been awarded the contract for recovering the buildings of the Hartford Electric Light Company. One of their biggest contracts this season was for the roofing of the grand stard and two barns at the Charter Oak Driving Park.

Among the contracts recently taken by J. C. McFarland, 2511-2519 State street, Chicago, can be mentloned the following: Akron red Spanlsh tile roofing and trimmings for the residence of Robert D. Sheppard, Evanston, Ill.; copper work and slate roofing for C. & N. W. railroad depot, Marsha'town, Iowa; copper, zinc and galvanized iron work with Ohlo red Spanish tile roofing for residence of F. R. Chandler, Lake Geneva, Wis.; Akron red Spanlsh shingle tile roofing, with tile trimmings and copper work, for residence of E. M. Higgins, Edgewater, Ill.; interior copper work for Post Office at Charleston, S. C.; galvanized iron work and slate roofing for new depot of C. & N. W. Railroad at Belleplaine, Iowa; copper and slate work for the new Post Office at Burlington, Iowa.

C. B. RICKERT, 194 Clark street, Chicago, has the contract for the copper work, skylights and elste roofing for the City Hall, Milwaukee, Wis.

At Amsterdam, Holland, will be held next year an international exhibition of hotel arrangements and accommodations for travelers. Among the features of the exhibition will be an "electric restaurant," without attendants, where visitors will be served automatically with a complete dinner on pressing an electric button.

The Census Bureau has lately promulgated a bulletin on the manufactures of the United States, which contains some very interesting information as to their condition at the late census. The document gives statistics of 67 industries, each turning out a yearly product of \$30,000,000 or over, included in which are the iron and steel, cotton, wool, lumber, oll, leather, flour and grain, and other leading industries. Of these 67 industries 287,501 establishments reported, or 80.89 per cent. of the total number in the United States. These establishments represent an agregate invested capital of \$5,249,139,842, or 45 per cent. of the total capital for all kinds of industries. In them are employed 3,730,557 persons, receiving

\$1,811,186,882 in wages, or 79.17 per cent. of the employees and 79.34 per cent. of the wages of all industries. The cost of materials used was \$4,273,402,066, or 82.84 per cent. of the total cost of materials for all industries. The value of product is shown as \$7,618,836,200, or 81.31 per cent. of the total of all manufactured products in the United States in 1890.

A dispatch from Panama to the New York Herald says that President Bonnardel has ordered an active resumption of work on the canal in behalf of the new Panama Canal Company.

General Flagler, Chief of the Bureau of Ordnance, in his annual report states that carriages for modern guns have been already constructed at the Watertown arsenal. These include 42 inch gun lift and non-disappearing carriages, and 8-inch non-disappearing carriages, while there are at present being built barbette carriages for 10-inch guns and estimates have been made for disappearing carriages for 10-inch guns. The arsenal is now equipped for producing large castings, such as the platform plates used for mounting guns at the proving ground at Sandy Hook and other special massive castings requiring high tensile strength. The output from the arsenal of sea coast guns of regulation pattern during the year was 11 8-inch, 11 10-inch and six 12-inch. In addition, one 10-inch wire wound Crozier gun has been completed and work is in progress on seven 12-inch mortars. With the additional machinery already installed the output per annum will be, as anticipated, 12 8-inch, 15 10-inch and 15 12-inch guns.

October's fire lesses in the United States and Canada, as compiled by the Journal of Commerce, amounted to \$8, 186,700—an unusually low figure, and the smallest of any one month in the past three years, excepting that of September, 1892, which was just under \$8,000,000. The loss in October, 1893, was \$11,014,700, and that in October, 1892, \$13,350,000. The losses for the first ten months of 1894 are \$25,000,000 lighter than those for the first ten months of 1893. This marked dimunition is hailed with satisfaction by the fire underwriters, as promising to aid in repairing the depleted surpluses of the insurance companies, after their disastrous experiences of last year.

A press dispatch from New Lisbon, Ohlo, reports that while Newton, Johnson & Co. were slaking an oil well in Union Township, Carroll County, that State, the drill passed through a vein of lead several feet in thickness 45 feet below the surface. Directly beneath the lead was found a vein of zinc 14 feet thick. It is said the lead assays 65 per cent. and the zinc 70 per cent. There is said to be great excitement in the locality where the find was made, and preparations are being made to mine the minerals.

## STEAM AND HOT WATER.

## Crude Gas For Steam Generating Purposes.

A correspondent of an English journal says: Gas can be used with any chimney, and by the use of gas it is impossible to make smoke. I have lately seen some boilers in London which have been worked with gas the last seven years and have paid 78 per cent. per annum on the outlay; and I hear gas is used at some paper mills in Kent with equally good results. Yet

steam for the heating of public buildings, and to supply private consumers in stores, residences, &c.

## A Novel Hot Blast Heating Plant.

The machine shop of the Fuel Gas & Mfg. Company of Brinton, Pa., has been provided with a hot blast heating system embodying several novel and interesting features, particularly in the

engine. The wheel inside the fan casing is 71 inches in diameter by 33\frac{1}{2} inches wide. At 340 revolutions per minute the fan will displace 48,360 cubic feet of air.

The entire hot air piping is carried clear up to the roof trusses and thence is brought down, with outlets on accord story, into the first story. This is an unusual application, and the piping would have been distributed equally on each floor but for the presence of so much machinery and shafting. As in-

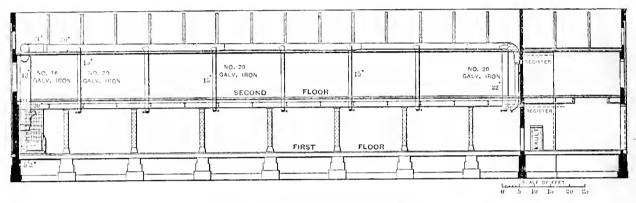


Fig. 1.-Longitudinal Sectional Elevation.

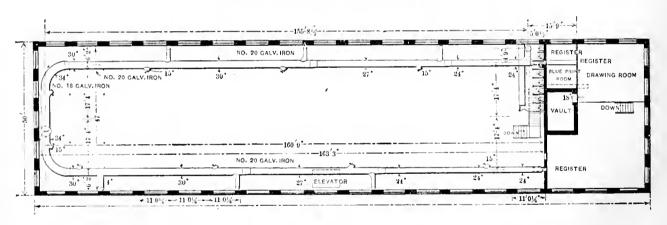


Fig. 2,-Plan.

A NOVEL HOT BLAST HEATING PLANT.

in both these cases the plant is out of date and does not give anything like the good results that may be obtained from a more modern installation with proper combustion chambers and arrangements for glving the gas a sufficient quantity of hot air. The novel plant is also less costly than the old, and would doubtless be used at any new place. The present plant cost £350 per pair of boilers and evaporates 9.11 pounds of water with the gas from 1 pound of fine slack. The modern plant would cost only £300 and evaporate 12 pounds of water with gas from 1 pound of the same slack.

A MOVEMENT is on foot in Circleville, Ohio, looking to the construction by a private company of a steam heating plant for the purpose of supplying

arrangement of the hot air piping. The designs for this system were made by Julian Kennedy of Pittsburgh and the Buffalo Forge Company of Buffalo, N. Y., built and guaranteed the plant. Fig. 1 is a longitudinal sectional elevavation of the building, Fig. 2 a plan view and Fig. 3 a transverse section. The hot blast apparatus is shown at the extreme left in Fig. 1. The building is 50 feet wide by 200 feet  $2\frac{1}{2}$  inches long, the machine shop proper being 155 feet  $8\frac{1}{2}$  inches long, the offices occupying the remaining portlon. The drawings show the arrangement of the plping and also give the thickness and diameter of the several sections.

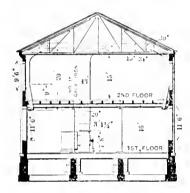
The heating apparatus consists of a 100-inch Buffalo fan and a 4000 feet capacity heater, the fan being driven by a 6½ x 8 inch direct attached upright

dicated in Figs. 1 and 3, the uptake from the heater is 43 inches in diameter. At the top this branches to each side, along which extends, on the roof truesee, a galvanized iron pipe, which is 30 inches in diameter where it joins the branch, and 24 inches in diameter at the other end. In these two lines of pipe are openings for heating the second story, and from them descend pipes for heating the first story, as shown in Figs. 2 and 3.

The temperature guaranteed on this plant was 65°, from zero outside, the calculation being to use exhaust steam from the main engine in the day time and the exhaust steam from the fan engine at night, together with live steam when necessary. Except during the coldest weather the exhaust steam from the fan engine is sufficient to heat

the building above the freezing point at night. Outside of the repairs, there is practically no cost, with the exception of the live steam used for running the fan engine, which is a very small matter. Part of the air is taken from the factory and part from outside, most of the air being used over and over again as a matter of economy. There being comparatively few people in the building, per cubic foot of space, the air is not vitiated to a great extent by respiration. In a factory using more power it would be possible to do the heating in the severest weather with exhaust ateam alone and taking all the sir from outside the building.

The condensation in one of these heaters is from three to five times as great as in the same amount of direct heating, either running around the building in the form of 1-inch pipe, or per square foot of direct radiation. Of course, by drawing the air by the action of the fan direct from the outside and



A Novel Hot Blast Heating Plant.—Fig. 3.—Transverse Section.

passing nothing but cold air over the coils a greater amount of steam is con densed than when taking the air from the inside. If there is no other use for the exhaust steam, however, then the amount condensed does not enter for consideration to any great extent.

We may add that under favorable conditions the larger part of the piping employed in the building just described could have been dispensed with. In many plants of this character, the apparatus would be placed near the offices, and a stand pipe would be run through the center of the building to the different floors, and this, with the office connections, would complete the layout. The cost of installing a plant of this character, exclusive of the galvanized iron work, is in the neighborhood of \$1250.

### An Old Steam Fitter.

The following is an extract from a Boston paper in reference to an old steam fitter, John L. Drew, 55 Blossom street, Chelses, Mass. Mr. Drew is 66 years old, and was born in Tuftonboro, N. H., June 12, 1828. On being asked about house heating, Mr. Drew said:

"Oh, we didn't have any house heating until about war times. It was a very expensive undertaking for a man to heat his house by steam then, and precious few had steam in their houses, I can tell you. A job of heating a nice house then cost about \$800 or \$900, and the same work or better can be done today for \$350, and there will not be the waste of steam, either. We merely put in an ordinary upright boiler, and let her

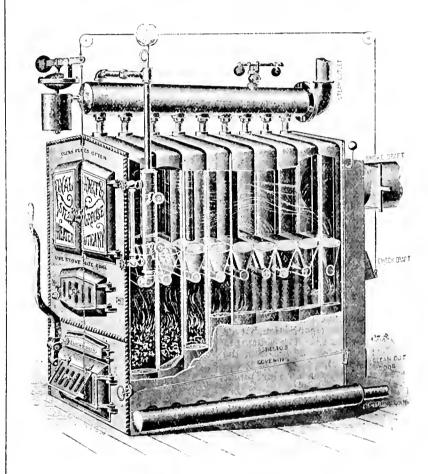
go for all the steam she was worth sometimes. I heat my house here by steam. I have in the boiler only about 1 pound of steam ordinarily. You see, it did not require nearly the amount of steam to heat buildings that was used for the purpose. Reducing valves have regulated that completely. There were no radiators then, and as a substitute in the way of something to prevent the pipes from marring the effect of the whole room a cast iron screen was placed around the coils of pipe and the coils gilded. If we wanted, too, a marble top could be placed on the screen."

When Mr. Drew first went to work at steam fitting there were no solid die plates for cutting threads in the pipe. Inch pipe and above had to be cut with a diamond point chisel. One who knows anything about the work can easily in-

a day, and a helper then got \$1 a day. The pay for a journeyman now is about \$3.50 a day and his helper gets \$1.75.

### The New Large Royal Heater.

We illustrate herewith a new steam and hot water heater recently invented and patented by W. M. Mackay, manager of the steam and hot water department of Hart & Crouse of New York, Utica and Chiesgo, and which is soon to be placed upon the market by the above firm under the name of the Royal heater. It is intended to be made in larger sizes than the present Royal heaters. In external appearance it is similar in construction, but the greater width and larger grate area enables the placing of the internal flues through which the heated gases travel different



The New Large Royal Heater.

agine the smount of work and time that meant.

"And then," said Mr. Drew, "i inch to inch i's and I's were of composition metal. Above that measure pipe was cast iron. But all their threads were cut with lathes, and it took about as long to cut one thread then as it does to cut six now."

Mr. Drew went into business for himself in 1867. The firm was Perham & Drew, and they had a shop at 62 Sudburv street. They were partners until 1870. Then he went into partnership with Isasc Coffin until 1890, when Mr. Drew sold out his interest and since then has been taking jobs for himself or working for other firms.

"I don't like to give up the work," he says. "There is a fascination about it for me, and I am active and love to work. Why should I stop?"

When he began at steam fitting a

When he began at steam fitting a journeyman fitter thought he was getting good wages when he was paid \$2

from their present constructions, as will be seen by referring to the cut. It is sectional in form, with screwed joints. The water legs of each section form their own portion of the base. The grate is an improved form of rocking grate. There is a slicing door immediately above the ash pit door which enables the slicing of all points of the grates. It has a large feed door which enables the birning of all kinds and sizes of fuel and a large clean out door which permits of cleaning all the flue surfaces quickly while the heater is in use heating the building. The heater contains a large amount of fire surface, so arranged, it is claimed, as to be perfectly self cleaning. The heated gases in combustion leave the fire box at the rest, traveling forward in a flue formed through the center of the sections against the vertical tubes to within a short distance of the front, when they are diverted into two flues, one on each side of the center flue. The gases

traveling back through these flues to the smoke connection at the back of the heater, which is fitted with movable diaphragms, compels the gases to travel to the bottom of the smoke chamber before passing upward to the smoke flue. These diaphragms being movable can be folded back, shortening the fire travel, and, it is pointed out, admit of the operating of the heater admit of the operating of the heater successfully with a poor draft or with soft coal as fuel. There is a clean cut door and bevel check draft fitted on this rear smoke box. The sections of the heater are connected together by means of screwed joints connected with manifolds on the outside of the heater, and the outside surface of the heater is covered with asbestos cement, preventing the radiation of heat into the basement. The heater is provided with a direct draft, which, when operated, allows the gases to pass directly from the fire box to the smoke outlet without having passed over the flue surfaces of the heater. It is also provided with a dust flue worked by a damper rod running to the front of the heater, which can be operated when shaking the grate, preventing the ashes eacaping in the boiler room. The size shown has a 32-inch width of grate and varies in length from 30 to 66 inches and is rated to carry 1100 to 3000 square feet of net steam radiation and from 2000 to 5000 square feet of net hot water radiation, exclusive of mains. The apparatus, as shown, is arranged as a steam heater, but it is also being constructed as a hot water heater. The aize, as shown, is completed and has been thoroughly tested; the results obtained, we are informed, far exceeding the manufacturers' expectations.

### HEATING NOTES.

The reception office and sample rooms of the Liebrandt & McDowell Stove Company, 123 North Second atreet, Philadelphia, Pa., are heated by one of their Home combination hot air and hot water heaters. The radlator in the effice is 80 feet distant from the heater, and the pipe leading to it can only be run with the minimum pitch, yet it is thoroughly heated.

THE UNITED STATES HEATER COMPANY were obliged to refuse orders for Mascot heaters a few weeks ago on account of the unexpectedly large sale of these bollers and the excessive demand upon their factory. We are advised that they have now made arrangements for outside foundry accommodations which enable them to fill Mascot orders again without interfering with prompt delivery of Capitol and Hecla heaters.

WE ARE INDEBTED to M. Mahony, Troy, N. Y., for one of his convenient monthly calendars for November. It is a card of proper size for desk use, and bears a modest reference to the Mahony boiler for steam and hot water heating.

GEO. A. JENCKS of the Union Steam & Gas Pipe Company, Pawtucket, R. I., called at *The Metal Worker* office during his visit to New York. The company are busy with a number of heating contracts.

James A. Hardino, 210 Water street, and Fred. P. Smith, 160 Flith avenue, New York, have been appointed as the Press Committee of the American Society of Heating and Ventilating Engineers.

THE USE of a ham boiler as an expansion tank on a hot water heating

system inspires confidence in the steam fitter's ability to overcome emergencies.

Fox & May, 521 Grand avenue, Milwaukee, Wia., have added to their plumbing business a department for steam and hot water heating and ventilating. They have accured the aervices of J. T. Ryan, who is well known in Milwaukee as an expert heating engineer, and have also secured the Morgan boiler for Wisconsin. They report the following contracts in progress of construction: Five atores and office buildings in Waukesha, Wis., together with the Hadfield House at the same place; in Milwaukee, the Honsrigheisen Flats. They are also fitting up James Sawyer's residence with two Morgan hot water boilers.

James A. Hardino of the Boynton Furnace Company, 209 Water afreet, New York, has returned from a business and pleasure trip to New England.

W. H. HILL of the American Radiator Company, 92 Centre atreet, New York, was one of the guesta at *The Metal Worker* office this week.

THE CITY HALL AND COURT HOUSE COMMISSION of St. Louis have decided to close the building up tight and by means of a small boiler and a coil of pipes force hot air into the portions of the building where plastering is being done or remains undried. There is plastering enough on the walls to entail a loss of \$5000 if not kept from the frost. A small engine and an air fan will be used, together with a system of pipes, which will carry the hot air to any part of the building, but not necessarily heat the whole. This system will keep the temperature at about 50° and enable work to be carried on all winter. The cost of this temporary heating is only \$700.

THE VALVES of the Mackay Mfg. Company, 66 James atreet, Newark, N. J., will be used on the heating plant in the St. George Episcopal Church, at Flushing, N. Y.

One of the applications of electricity, as described in the St. Louis Globe-Democrat, is to the sealing of cans of fruit and preserved meats. A conductive layer is formed on the lid of the can, and a metal coating is deposited by the ordinary methods of electroplating. The process is being applied to the sealing of bottles of wine, beer and chemicals with a metallic coating or capsule.

A number of second hand stove and iron dealers of Hamilton, Ont., lately petitioned the City Council, asking that a license fee of \$100 be imposed on peddlers who go from door to door peddling and purchasing stoves and iron. The petition was laid on the table indefinitely, the chairman remarking that if the second hand men considered that their business was suffering there was nothing to prevent them from going from door to door with horses and wagons, too.

At the recent labor convention in Indianapolis it was proposed by the delegates representing the iron and brass workers of the United States to establish for their trades, in all the large cities, a central union of which all the various metal trade unions will be members. The idea is to make a sort of clearing house for the various iron and metal industries, where they may be brought into contact and through which they may take joint action on any question.

### Canadian Mica Mines.

The Empire of Toronto, Canada, says that the Baumgartens of London and Washington, who are the largest opcrators in mica in the world, have just succeeded, between purchasing and bonding, in obtaining control of all the best known mica properties in Canada at a high price. The speculators declare that Canada has the finest white mica to be found anywhere. The Canadian Mica Company of London, England, of whom II. Baumgarten is president, already owned two mines of amber mica up the Gatineau, two in Frontenac, one near Murray Bay, one at Tadousac 200 miles below Quebec, and an asbestos mine at East Broughton, near Quebec. In addition to these the syndicate have acquired a series of mines situate near Murray Bay, 15 miles inland from the St. Lawrence, and others at Beaver Lake, near the mouth of the Saguenay. Some 200 men are employed at the mines, and this number will be largely increased next year when electric plants have been introduced. The company propose to double the output of the mines and profess to have a market for all the mica they can produce, provided it is of good quality and size. The mineral is to be drawn on sleighs to Quebec, 100 or more miles, during the winter season when the St. Law-rence River is frozen over. The Mining Review, it should, however, be mentioned, cautions in vestors about trusting the reports as to the great profits from mica mining.

### New Publications.

THE SANITARY ARRANGEMENT OF DWELL-ING HOUSES. By A. J. Wallis-Tayler, C. E. Size, 7½ x 5 inches; 196 pages. Published by Crosby, Lockwood & Co., London,

The book begins with some hints on the selection of a site for a residence, and then briefly outlines the plumbing system required for a sanitary system. The explanation of different manufactured articles used in house plumbing then takes up the remaining pages, giving illustrations of intercepting traps, fresh air inlets, various soil pipe joints, methods of testing different atyles of water closets, latrines and earth closets, gully traps, grease traps, flush tanks and ventilators. An appendix contains the Public Health act of London of 1875 and of 1891, the Model By-Laws and the Metropolis Water act of 1871. The book also contains a well arranged index.

A patent has been granted to August Shwaag, Berlin, Germany, for an improved method of tinning iron castings. The process consists essentially in coating the iron castings electrolytically with an alloy of iron and nickel or an alloy of iron and cobalt, and then covering the surface with tin. It is claimed that by this preliminary treatment the coating adheres exceedingly well.

Thomas A. Edison has sent to a New Jersey traction company a box of what he calls Ogden magnetic sand, which he believes will prove highly useful for trolley cars by rendering perfect electrical connection through snow and ice and preventing all alipping of the wheels in snowy weather. The sand is from Edison's mine at Ogden, N. J., where he is teeting his magnetic ore separator.

# PLUMBING and GAS FITTING.

## Philadelphia Master Plumbers' Association.

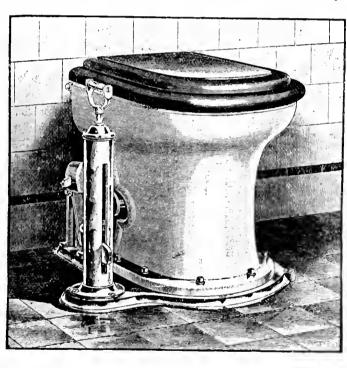
The members of this association are already making preparations for entertaining the delegates to the convention of the National Association of Master Plumbers to be held in the Quaker City next June. As a basis for operations. a Finance Committee was appointed at the October meeting composed of George F. Uber, chairman; Wm. S. Clark, Wm. Harkness, John E Eyanson, John Gormley, Saml. W. Barnes, Wm. McCoach, Wm. 11 Doyle, Wm. L. Owens, A. M. Hicks, Wm Calhoun, G. Wallace Smith, and F. P. Brown. These gentlemen are well fitted to take charge of the business end of the proceedings, and their appointment augurs well for the success of the meeting.

that the thirteenth convention shall, if possible, outshine previous conventions, or at any rate equal the best of them.

The ill luck attaching to the number 13 will be dispensed with for this occasion, and, like the 13 original States, the thirteenth convention of the National Association will not be lacking in solidity. From this time forward the association will be actively engaged in formulating and carrying out plans for the entertainment of the delegates and their lady friends on such a scale as to make their visit to the City of Brotherly Love one long to be remembered.

### Columbia Ship Closet.

The subject of our illustration is the Columbia ship closet made by McCam-

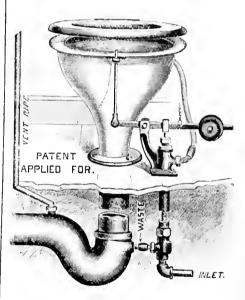


The Columbia Ship Closet.

At a meeting of the association held on Thursday evening last it was arranged that a souvenir book containing a complete history and description of the city of Philadelphia should be published by the association, and a committee composed of John Gormley, chairman; Samuel Barnes, Wm. Harkness, Chas. L. Parmalec and Wm. L. Owens was appointed to carry out the arrangement. The members of the association have shown by their early action that the proverbial "sleepinesa" of Philadelphia is a myth as far as her plumbers are concerned, and the future will prove that they are very much wide awake. It has been determined

bridge Company, Limited, 523-527 Cherry atreet, Philadelphia, Pa. This closet is in operation on the United States cruisers "Columbia" and "Minneapolis," and has been selected for the International Navigation Company's steamers "St. Louis" and "St. Paul," now being completed by W. Cramp & Son Steamship and Engine Building Company of Philadelphia. The closet is constructed with a view to securing for ships what is so highly appreciated in modern house plumbing—a water closet without wood inclosure. The supply and outlet fittings are located at the back and while perfectly accessible are concealed from view by a pedestal flushing rim bowl to which is securely hinged a hardwood seat and cover, the whole being mounted on a cast iron

base, which admits of the closet being firmly fastened to the floor. Water is supplied to the bowl and refilling chamber in the back of the bowl through a 1½-inch valve, Insuring not only a thorough flushing of the closet, but an abundant refill to the bowl after each operation. The bowl is conveniently located and is held in position by a brasa cylinder, which also guides the valve lever and weights. One of the features of the Columbia closet is that



A Frost Proof Valve.

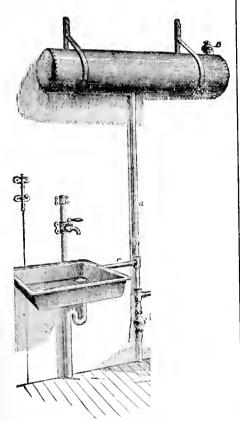
It is made of vitreous earthen ware, which is said to be not only proof against crazing, but to be perfectly non-absorbent and of the same material all the way through.

### A Frost Proof Valve.

A feature of the illustration presented herewith is the frost proof valve made by Casler & Hastings, 360 Seneca street, Buffalo, N. Y. The valve is designed for use in connection with water closets, urinals or any water fixture that is exposed and liable to be frozen. As will be seen in the Illustration, valve is connected with the water closet and by means of a lever which may be operated with a chain or red flushes the water closet when epened. The valve proper is located below the fixtures with which it is connected and as low as possible, in order to avoid exposure to freezing temperature. In operation, on opening the lever, a anpply of water finds its way to the closet or fixture, and when the weight of the ball on the lever closes the valve the water in the pipe above the valve wastes into the drain pipe that is used in connection with the fixture. All of the werking parts are said to be well constructed and of durable material, so that there is nothing to get out of order. Circulars giving an enlarged sectional view of the working parts of the valve, with a full description and prices, can be supplied by the manufacturers.

### Water Without Pumping.

With a city water supply it often happens that the pressure is not great chough at all times to force the water To do away with to the upper floors. the labor and expense of pumping, a device, illustrated in the accompanying engraving, is employed. It will be seen that it consists of an ordinary kitchen boiler of a size adapted to the require. ments of the house, and may be suspended from the ceiling or can be placed in the attic where it is concealed from view. In such cases it may rest on the ceiling joists. The check valve shown by A is placed below all the fixtures or The check valve shown branches from the main upright pipe.
The highest point of the boiler is tapped for a a inch pipe and the Kelly water vent B is screwed in. A safety pipe, furthermore, is carried to a point over the sink to guard against the possible leakage of the vent. When the pressure is strong the storage tank is filled and the water can be drawn from



Water without Pumping.

the pipe direct, leaving the tank full to supply water at times when the pressure la low. The water then comes down from the storage tank to the fixtures. The manufacturers, Thomas Kelly & Brothers, 124 Franklin street, Chicago, Il., sell a check valve and air vent, and the plumber making use of the arrangement may obtain his boilers where he desires. Both the air vent and the check valve have a rubber ball inside and a sharp raised seat to prevent particles from lodging between the seat and the ball. It will be observed that there is but one pipe, as the water comes up to the boiler and returns to the faucet by the same pipe.

WE ARE INDEBTED to the Journeymen Plumbers' Local Union No. 7, Albany, N. Y., for an invitation to attend their second grand ball at Union Hall, on Monday evening, November 19. The committee in charge of the enter-

tainment are John J. Gervin, chairman; Myron Cook, John Baker, James J. Culter and William M. Walsh.

### Kitchen Boiler Connections.

The reception given to "Kitchen Boiler Connections" by the trade has already made the issue of a second cdltion necessary, though the first edition only made its appearance in August. It has been complimented by the press and pronounced excellent by the trade, who have secured it as a handbook for the shop. Being taken from the in-quiries for information in the Letter Box of The Metal Worker it deals with actual experience, and the correspondence used has been selected with a view to treat clearly and simply the principles governing the operation of a water back and a boiler. The letters have been arranged so that step by step the reader would advance from the simple connection to the more complex, with a thorough understanding of the principles that must be observed to make the job work properly. To this informs. tion is added an Invaluable collection of the methods used in overcoming the troubles that have arisen from the im proper arrangement of the piping and of supplying hot water in many different ways. Some of the troubles for which remedies have been offered are noisy boilers, steam at faucet, insufficient heating of water, inefficient circulating pipes and many others. So many difficult problems are seldom presented in the experience of one man, and they have been explained by some of the foremost plumbers of the country. By no means the least interesting feature of the book are the chapters on heating rooms from the kitchen boiler, showing different methods of doing it, and on heating rooms by means of radiators connected with coils in heating stoves and furnaces. General rules are given for determining the size of the radiator necessary and the size of the coll required, which if used with discretion will be found safe in practice. The book has sold in all sections of the United States, Canada and Great Brltain.

### School Closets.

There is nothing in which the people should take a deeper interest than in the provision of convenient sanitary appliances for the use of their children at school and only such arrangements as are of unquestionable excellence should be selected. It is too true that there is a disposition to charge all public officials with extravagance in the expenditure of public money and the result has frequently been a demand for some cheap makeshift which in the end is costly. It is quits probable that this search in the name of economy has brought into the market many sanitary apparatus more or less defective in principle or construction.

The plumber is the true economist when he insists that nothing shall be used but the least expensive form of closet that is first class in principle and operation and yet for this advice he is denounced as mercenary. It has been urged that water closets cannot be used where there are no sewers, which shows the great mistake that cities make in not providing a system of sewers at the same time the streets are opened for laying the pipes for water. A cesspool is not to be generally recommended, but with vigilant care and frequent cleaning aud disinfection its evils may be a most nullified.

Where a cesspool is used, instead of being at the back part of the play grounds out of the reach of the public eye and a possible menace to the children, it should be located under the sidewalk at the front of the school so that it may be filled in at the first possible opportunity for connecting the drainage system with a sewer.

By installing a proper system of plumbing in a school the first step is taken for cering for the health of the children. If a cesspool is the only alternative as a receptacle for the discharge of the drainage system the expense and vigilance necessary to keep it in a proper condition of cleanliness will be an incentive to seek some better method of finally disposing of the sewage. If located in the street, as is the case with thousands of residences in cities where the system of sewers has not extended, any neglect that permits it to become offensive will bring prompt complaint to the Board of Health, which is usually clothed with authority to abate any nuisance that is a menace to the public health.

### TRAPS AND VENTS.

THE MECHANICS' SUPPLY COMPANY, 96 St. Peter street, Quebec, issue a circular showing in illustration their exhibit of plumbing and steam fitting supplies at the Agricultural and Industrial Exhibition of the Province of Quebec, held in September, 1894

GEORGE J. DEHN, successor to Dehn & Slutz, Iron Mountain, Mich., has several good plumbing contracts on hand, and advises us that business during the fall was excellent, no with standing the hard times in the iron region.

THE PLUMBING ESTABLISHMENT OF Clark & Sons, at Indianapolis, Ind., was destroyed by fire last week.

A PROMISING young plumber who was out of work this summer took in some of the county fairs profitably, as the following from a local paper implies: "The wonderful young peanut vender was a whole circus by himself. His yawp could he heard 18 miles, and when his mouth was open, which it was most of the time, his head was more than half off." It is said that he sold 36 hushels of peanuts in three days.

F. C. HEALY, La Crosse, Wis., has sold his plumbing stock to George J. Egge.

E. R. HALL, Waverly, N. Y., a plumber formerly with E. D. Mixer, has opened a plumbing shop.

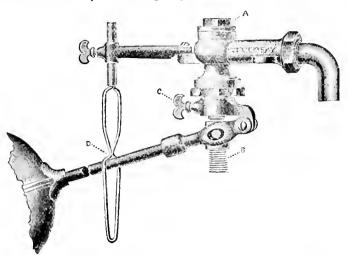
L S. Boardman, formerly of Parkersburg, W. Va., and later a resident of Huntington, has returned to Parkersburg and opened a plumbing and gas fitting establishment in the Academy of Music Building, 505 Juliana street.

A MEETING of the master plumbers of Springfield, Masa., was held last week at Cooley's Hotel and plans for the quarterly meeting of the Master Plumbers' Association of the State, which is to be held in Springfield, November 14, were informally discussed. A large delegation of local plumbers, also several from Northampton and Worcester, were present. The meeting of the State Association will be held in Graves' Hall, commencing at 10 o'clock, and will last through the afternoon and evening. At that time the plumbers will make their headquarters at Hotel Russell.

THE COMMISSIONERS of the District of Columbia last week gave a hearing to a delegation from the Master Plumbers' Association of Washington, D. C.,

consisting of James Nolan, J. R. Quinter, James Cunningham and Edmund Mallet, Jr. They urged several changes in the regulations. They requested the commissioners to pass some regulation which would prevent foreign

been formed, with a capital stock of \$10,000, for the purpose of manufacturing, buying and selling metal plates for floor and ceiling and steam fitters and plumbers' specialties. The company will occupy the factories recently



The Novelty Ball Cock.-Fig. 1.-Showing Quick Closing Top Supply.

labor from coming into the city, and after obtaining a license do a single piece of work and then return to their homes.

M THE QUESTION of a sewer system is being agitated in Windsor Locks, Conn. The town was empowered by the Legislature in 1893 to construct sewers, but the business depression has delayed the matter. A town meeting is soon to be held to consider the matter, and there is a prospect that the work will be commenced at no distant day.

Carlisle & Fisher have opened a plumbing shop at West Franklin street, Hagerstown, Md.

DENNISON & VEASEY, plumbers. have started a shop at the corner of Wyandotte and McDougall streets, Windsor, Conn.

James H. Doyle has moved his plumbing shop to 437 Third street, Red Wing, Minn.

THE SMITH ENGINEERING COMPANY have been incorporated at Macon, Ga, to do a general plumbing business, with a capital of \$50,000. The incorporators are J. W. Cabaniss, B. L. Jones and others.

JOHN H. READ, Brooklyn, N. Y., will be qualified to pass on the plumbing laws that will be presented to the legislature at Albany this winter, having been elected a member of the House and being a past master in the art.

THE PFAU MFG. COMPANY have been incorporated at Cincinnsti, Ohio, to manufacture water closets, &c., with capital of \$35,000. The incorporators are: Charles Pfau, Edward G. Pfau, Louisa Pfau, Harry Beeching and Alfred Becching.

MICHAEL W. COLLINS and THOMAS F. FALLON, two Boston, Mass., plumbers, have been elected to the State Legislature.

It is the purpose of the 40 or 50 journeymen plumbers in Erie, Pa., to take up the subject of sanitary engineering. After rooms are secured scientific journals, trade papers, and sketches of improved systems will be secured, and possibly lectures will be arranged for.

A NEW JOINT STOCK ASSOCIATION, under the name of the Beston & Bradley Company, Southington, Conn., have

occupied by the Connecticut Motor Company in Plantsville.

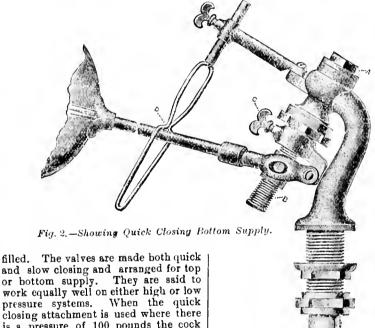
### The Novelty Ball Cock.

Peck Bros. & Co., New Haven, Conn., are just putting on the market the Novelty ball cock, shown in the Illustrations herewith. They claim it successfully avoids the disagreeable noise that attends the closing of the valve when the flushing tank of a closet is being re-

the tank valve or rub against the sides of the tank. Weighted floats, weighing not less than 28 ounces or more than 30 ounces, should be used with the quick closing cocks. The valve packing can be renewed by removing the cap A. Circulars showing all styles of this cock and giving full description can be supplied at any of the offices of the company.

### Sanitary Plumbing.

The papers read before the recent Sanitary Congress in Liverpool, says the Engineering Magazine, and the discussions these elicited, again bring the dangers to health and life through the spread of infection by sewers to public attention. There can remain no doubt in the minds of intelligent and well informed men that to avoid such dangers the whole system of house drainage should be constructed from beginning to end in accordance with the most advanced principles and methods of sanitary plumbing and sewer construction. People with small means hesitate when sanitary plumbing is named, because, in the popular mind, this term is thought to mean also expensive plumbing. newspapers describe the gorgeous appliances and fittings going into some millionaire's houses in glowing language, and speak of this sort of thing as sanftary plumbing; and the msn of small means gets the idea that sanitation is an sccompaniment of splendid living only possible to the wealthy. This is a great mistake. Sanitary plumbing means nothing more than plain plumbing done on sound principles, the practical appli-cation of which need cost very little



and slow closing and arranged for top or bottom supply. They are said to work equally well on either high or low pressure systems. When the quick closing attachment is used where there is a pressure of 100 pounds the cock will run a full stream until the tank is nearly filled, and it is claimed the tank will be filled in 15 seconds. Fig. 1 shows the quick closing cock with a top supply and Fig. 2 shows the cock with bottom supply. In adjusting the cocks the hight of the water in the tank is regulated by screwing the overflow tube B to the right or left, as may be necessary. After securing the cock to the tank and adjusting the float to the hight of the water required, the quick closing spring is adjusted so that the float rod will pass through the contracted neck of spring D and is securely fastened by the thumb screw. The float should be so arranged as not to interfere with

more, either in msterial or labor, than a defective job. It will cost the plumber who does it something more than the common, inferior sort of plumbing. It will demand more brains, knowledge and skill. The leading plumbers in this country have acquired the leading knowledge and skill, and are prepared to do their work as perfectly as the present state of the art will permit; and if fancy work be not demanded, will do it in sanitary respects as well for the man of limited means as it can be done for a millionaire.

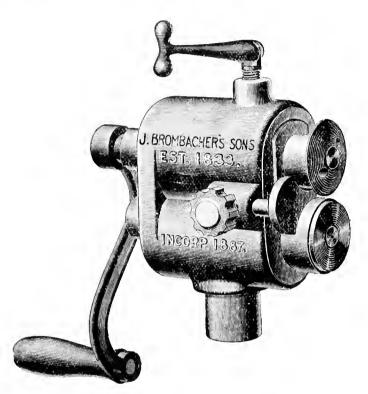
### Exectsion Incased Burring Machine.

In the accompanying illustration we show a general view of the new Excelsior incased burring machine, put on the market by Jacob Brombacher's Sons, 30 Cliff street, New York. The particular feature of the machine is that the case is cast in one piece and is of

slight spring of the lever. The machine can also be used for either burring or turning by substituting corresponding faces.

### Spring Vise Jaws for Tubing.

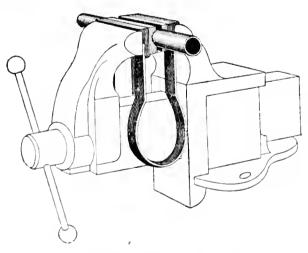
The Newark Machine Tool Works, Newark, N. J., are offering spring vise



Excelsior Incased Burring Machine.

exceptional strength. All the parts are perfectly interchangeable, and the gauge is described as simple in construction and very durable. The crank screw is made with a swivel handle, so as to always keep it clear of the work. It does not bear on the front box of the upper spindle, but on the middle of a spring steel lever, which is connected

jaws for tubing, as shown in the accompanying cut. The device is described as having jaws made of the best vulcanized fiber, securely fastened to pieces of the best malleable iron which have shoulders to catch on the jaws of the vise, and as being held together by a spring connection. When the vise is loosened to take out or to shift the



Spring Vise Jaws for Tubing.

to the frame at one end and rests on the front box with the other. The important advantages gained by this construction, to which the manufacturers allude, are that only half the number of turns are needed on the crank screw to clear the work, and that any undue strain on the machine, such as the roll passing over seams, is neutralized by a work, the spring causes the jaws to open, following the motion of the vise. It is stated that the paper jaws nearly encircle the tubing, holding it so firmly that it cannot slip, and avoiding all danger of distorting the tube, or marring the finish of the surface. The grooves are made in the jaws to suit any required diameter up to and in-

cluding 1½ inches. The device is designed for holding tubing or any cylindrical piece which is too delicate or too highly finished to be held in a pipe vise, and is made with jaws of the following lengths: 3, 3½, 4, 4½, 5 and 6 inches.

### Storage Battery Locomotive.

Norton Bros. of Maywood, Iil., are using in their tin plate factory an electric locomotive deriving its propelling power from a storage battery. The locomotive displaces hand labor in pulling small cars loaded with tin plate from one part of the factory to another. The plant consists of a number of detached buildings, and the magnitude of the operations compelled the adoption of some sort of mechanical power in transferring the heavy material between the several departments. A storage battery locomotive was decided to be the best adapted to the peculiar requirements of the work, and the firm of Pierce & Richardson, Manhattan Building, Chicago, prepared the design\* and supervised the installation, the battery being the work of Frederick L. Merrill. It is stated that the locomotive has worked so satisfactorily that Norton Bros. contempiate the addition of others.

The locomotive is built of wood, but strongly constructed. It is 5 feet in length, 30 inches in width and 44 inches in hight. Its weight is about 5000 pounds, and its four wheels are 20 inches in hight. The battery consists of 24 chloride ceils, and is piaced in the upper portion of the locomotive under cover. The motor is mounted on a McGuire truck, and develops 4 horse-power at 50 volts but is capable of running up to 6 horse-power at 80 volts. The locomotive has pulled five cars weighing over 8000 pounds on a track not in the best condition. The cells of the battery have been found to endure jarring or bumping satisfactorily. The battery is charged on the premises from a generator which is also used for supplying power to motors running machines in various portions of the plant. A wire is run from the generator to a number of points along the track, at which the battery can be charged whenever the locomotive is standing, thus keeping its efficiency constant.

The Columbia Zinc Works, Marion, Ind., of which James Latourette is proprietor, are in fuil operation manufacturing spelter for the general trade, and turning out about three carloads per week, which is principally shipped to consumers east of Marion. The ore is brought from Missouri. Silicate ore has been used hitherto, but an additional furnace has just been completed which will run on jack ore or blende. The new furnace consists of 16 kilns, arranged with eight on each side, and provided with three stacks, of which one is in the center and the others are at the ends. The furnace is 60 feet long, 19 feet high and 12 feet wide, and is expected to add considerably to the output of the works. The product is sold almost entirely for galvanizing purposes.

Some time since a leading merchant in Africa, who is an extensive purchaser of hardware, visited this country. Incidentally the low price of American bar iron was brought to his attention. The result has been that a trial order for bar iron for export to Africa is about to be given out.

### HEATING & PLUMBING.

### NEW WORK AND CONTRACTS.

BIDS will be received at the office of the City Clerk of Taunton, Mass., for the heating and ventilating plants for the County Street School House up to November 12 and for the Berkley Street School House up to November 19.

E. BAGGOT, 169-171 Adams street, Chicago, has the contract for the plumbing, gas fitting and aewerage in the two houses of Mrs. H. G. Woodward, Grand boulevard.

CLARK & JACOBS, Danielsonville, Conn., have the contract for plumbing the Phenix Hall Building.

SCHENERLEIN & BRO, Wheeling, W. Va., have the contract for placing a furnace and heating apparatus Methodist church in Davis, W. Va. They also have the contract for roofing the residence of Surveyor Bell, in West Liberty. William Schenerlein has just returned from Elkins, where he was superintending a job.

H. S. THOMPSON, 211 Randolph atreet, Chicago, has finished the plumbing in the flat building of Frank Euchent, Jackson boulevard.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until November 9, for a low temperature hot water heating apparatus for the surgeons' residence, United States Marine Hospital, Detroit, Mich. Drawings and specifi-cations may be had from the office of the Supervising Architect, Washington, or from the Superintendent, at Detroit.

THE BAKER & SMITH COMPANY, 193-197 Van Buren street, Chicago, are to install a hot water heating plant in the residence of Mrs. M. R. Brush, Michigan avenue and Forty-fourth street.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until November 30, for work including the plumbing of the United States Custom House and Post Office Building at St. Albans, Vt. Drawings and specifications may be had from the cifice of the Supervising Architect, Washington, or from the SuperIntendent, at St. Albans.

J. H. KENNEDY of Ware, Mass., ia doing the plumbing in Holden's new block, at Palmer.

THE WESTERN STEAM & HOT WATER HEATING COMPANY, 67 West Washing ton street, Chicago, report the following contracts for steam heating: Threeatory flat building of Mrs. Joseph Asron, 547 Robey street; three-story flat building of Thomas O'Connor, 51 Whipple street; three-story flat building of Wm. Fisher, 321 Chicago avenue; two-story flat building of W. S. Jones, 1589 Lexington avenue.

THE CONTRACT for placing the steam heating apparatus in the Riverside Hotel, Waterford, N. Y., has been given to Robert Pinkerton of Green Island.

JOHN GILLIE, Kingston, N. Y., has received the contract to equip the hotel of George Cole, at Pine Hill, with plumbing apparatus.

FOSTER & GLIDDEN, 53 Dearborn atreet, Chicago, are to place a Farquhar warm air furnace in the residence of Robert Airey, Morgan Park, Ill.

Pa., to furnish new heaters for the Lutheran church.

OPTENBERG & POTT, Sheboygan, Wis., have the contract for furnishing the heating and ventilating apparatus for the new public building.

- T. C. Joy & Co., 82 Lake street, Chicago, have shipped two carloads of Orient radiators for the Jesuits' Church, Milwaukee, Wis.
- P. B. CARY & Co., Dunkirk, N. Y., the contractors for the new system of plumbing at the Academy, have begun work under the supervision of Inspector Mann. Twelve new closets are to be put in, with slate urinals, and the broken tile in the drains under the floor are to be taken out and replaced with east iron pipea.

THE KIDDER MACHINE COMPANY, Franklin, N. H., have completed the ateam heating plant in Young's Hotel.

A. C. HICKEY, 69 South Canal street, Chicago, has a large contract of sewerage work for the Chicago Dock Company, at Twelfth street.

TRUE & BLANCHARD, Newport, Vt., have the contract to put the heating apparatus into the Court House.

HARLOW & BAILEY, Plymouth, Mass., have installed a Richmond steam heater in the Leyden Hall Building.

THE AMERICAN RADIATOR COMPANY, 111-113 Lake atreet, Chicago, are to furnish four carloads of radiators for the 14-story Reliance Building, Washington and State streets.

A. A. SANBORN of Boston, Mass., who installed the heating apparatus at the Fairhaven Town Hall, the Millicent Library and the Rogers School, has been awarded the contract to furnish heating apparatus for the new almshouse in Fairhaven, Mass. Wood, Brightman & Co. of Fairhaven have been awarded the plumbing contract on the comp building. on the same building.

THE CHICAGO HEATING COMPANY, 40 North Clark street, Chicago, are to place a Hecla ateam heater in the residence of J. M. Vial, La Grange, Ill.

TRACY BROTHERS, Ballaton Spa, N. Y., have been awarded the contract for a large amount of plumbing at Round Lake.

E. C. STOUGHTON, Thomaston, Conn., is to build a residence to be heated by hot air or hot water and to have modern plumbing.

THE S. WILKS MFG. COMPANY, 113-123 Clinton street, Chicago, are to furnish a Wilka heater for hot water heating in the residence of C. B. Shourds, Forty-fifth atreet.

THE EPISCOPAL SOCIETY, at Naugatuck, Conn., are to build a rectory to be heated by steam or hot water and to have a system of plumbing.

GEORGE E. DOWNE, president of the GEORGE E. Downe, president of the Ideal Boiler Company, 96 Dearborn street, Chicago, made a flying trip to St. Louts recently, and while he was there the Model Heating Company of that city closed a contract to heat 19 houses, in all of which the Ideal hot water heaters will be used.

T. P. TERRY & Son, Ansonia, Conn., have the contract for the plumbing and ateam heating in a \$10,000 house being erected at Naugatuck by R. S. Woodford.

A. B. WILKINSON, West Haven, THE CONTRACT has been let to the Johnson Machine Company, Uniontown, house of DeWitt Bradley.

THE FULLER & WARREN COMPANY, 147-149 Lake street, Chlcago, are to place a warm air furnace in the Nor-wegian Methodist Episcopal Church, Kedzie avenue.

CURTISS & PIRRPORT, New Haven, Conn., will do the plumbing in the new house of Geo. G. Powning. The heating contract has not been awarded.

- F. WM. SCHNEIDER, New Haven, Conn., is bullding a new house to be heated by furnaces and to have a system of plumbing.
- J. H. Shaw is to build a new house, at New Haven, Conn.. that is to be heated by hot water and have a system of plumbing.
- T. W. CORBETT, New Haven, Conn., the contract for the plumbing in two houses being erected by Wm. Kirkwood.
- C. HERPICH, New Haven, Conn., will do the plumbing in the new house of C. E. Smith.

JOSEPH DUGDALE, East Norwalk, Conn., will do the heating and plumbing in the Childs residence, at New Canaan, and in the residence of Geo. W. Schlicting, at Darien.

D. H. KELLY, Derby, Conn., has the heating contracts for the houses of Mayor Sullivan and Commissioner Mc-Manus. Mr. Kelly has recently put a water motor in his shop for running his pipe machine, and according to report it is giving excellent satisfaction.

THE CLARK & WELLINGTON COMPANY, Bridgeport, Conn., have the contract for the heating plant for the twofamily house being erected by J. Sporgo.

E. BAGGOT, 169-171 Adams street, Chicago, has been awarded the con-tract for plumbing and sewerage in the stations of the Lake Street Elevated Railroad, at Lake street, Fifth avenue and Clark street.

GEO. M. COUCH, Hartford, Conn., has just completed the installation of a combination heating plant in the real-dence of Norman F. Allen and is doing a similar job for Dr. Alton, using a Howard combination heater in both.

A. WETZEL, Pittsburgh, Pa., is using a Howard combination hot alr and hot water heater in heating a fine residence for one of his customers.

J. H. DEVENEY, 2306 Cottage Grove avenue, Chicago, has the contract for plumbing, gas fitting and sewerage in the handsome residence of Leon Mandel, Michigan avenue and Thirty-fourth street. The Imperial porcelain baths, sinks and other plumbing specialties manufactured by the J. L. Mott Iron Works are to be used.

JOHN P. SCHAFFER, heating and ventilating engineer, 18 Wood street, Pittsburgh, Pa., has recently received a contract for the hot water heating for the new residence of J. L. Patty, Sewickley, Pa., and also for the new club house of the Edgeworth Club, Edgeworth, Pa. Mr. Schaffer also has the contract for the steam heating for 12 new dwelling houses on Beatty street, East End, Pittsburgh, Pa., and has East End, Pittsburgh, Pa., and has recently received contracts for hot air heating for nine dwellings on Fifth avenue, Oakland, Pittsburgh; for the Grace Lutheran Church, Mt. Troy; Holy Incense Episcopal church, Leechburgh, Pa., and St. Charles' Roman Catholic church, New Bethlehem, Pa. In all of the above work, the Novelty In all of the above work the Novelty heaters and furnaces, made by the

Abram Cox Stove Company, Philadelphia, Pa., are used exclusively.

DAVIS, WRIGHT & Co., Keene, N. II., have contracted to put a hot water heating apparatus into the house of Young Jones, South Lincoln street.

William A. Eiculer, 75 Twenty-second street, Chicago, is to do the plumbing, gas fitting and sewerage in the store building of E. Bergman, 79-81 Twenty-second street.

THE HEATING APPARATUS is being put in the new High School Building, at Vinalhaven, Maine, by the Worcester Steam Heating Company, Worcester, Mass.

Sands & Regan, 54 Fifth avenue, Chicago, have the contract for the plumbing, gas fitting and sewerage in the residence and flat building of Dr. James Lawles, Wabash avenue and Fifty-second street.

THE ALCOCK PLUMBING COMPANY, 102 Twenty-second street, Chicago, have the contract for plumbing, gas fitting and sewerage in the flat building of George Lyon, 5029 Calumet avenue.

John Glotzbach, 189 Washington atreet, Chicago, has the contract for the plumbing, gas fitting and sewerage in the six flat building of George F. Stoneham, Wentworth avenue and Sixtyninth street.

THE L. H. PRENTICE COMPANY, 203-205 Van Bureu street, Chicago, have the contract for the steam heating in the very fine residence of A. O. Slaughter, Drexel boulevard and Thirty-eighth street.

THE DAVIS-JOHNSON COMPANY, 45 Jackson street, Chicago, are to place the New Idea smoke consuming furnace in the following residences at Rogers Park: E. II. Garretson, Dr. A. E. Lowell, J. E. Rockwell, Dr. F. M. Burr.

THE TIME for opening the proposals for the low temperature hot water heating apparatus for the surgeon's residence at the United States Marine Hospital, Detroit, Mich., has been extended until November 20.

P. V. DWYER & Co., St. Paul, Minn., bid \$3400 and secured the contract for the system of closets for the Adams, Scheffer, Garfield and Jackson schools.

Among the contracts recently taken by J. C. McFarland, 2511-2519 State atreet, Chicago, can be mentioned the following: Celedon Terra Cotta Company's open shingle tile roofing for residence of Leon Mandel, Michigan avenue and Thirty-fourth street; same roofing and copper trimmings for the residence and stable of C. F. Unrath, West Monroe street; about 1600 squares of heavy corrugated iron roofing for two electric power houses, one each for the North and West Chicago atreet rail-ways.

THE ANDREW McCABE COMPANY, Newark, N. J., will erect two threestory \$10,000 houses that will be heated by hot air and provided with a system of plumbing.

SMART & WATSON, Carbondale, Ill., have contracted to put hot water heating apparatus into F. A. Prickett's house.

The Board of Trade in Washington, D. C., has pronounced in favor of encouraging manufacturing establishments to locate in the national capital.

### SCRAP.

MERCHANT & Co., Incorporated, issue circulars from their Chicago house, under date of November 1, giving special quotations on an extensive line of demestic and imported tin and terne plates. The price-list also deals with copper, galvanized iron, sheet zinc, solder, eave troughs and special sheet irons, as well as other metals. The back of the catalogue calls attention to their metal Spanish tiles. A separate circular issued by the same firm relates to rosin sized sheathing, the text being printed on a sample of the article.

Two black plate mills have been started up at the works of the Irondale Steel & Iron Company, Middletown, Ind., and are running satisfactorily. Two more mills will be put in operation next week, and two more, making six in all, early in December.

It has never been claimed that American tin plates were perfectiou, but it must be admitted that opinion has generally been favorable to them in comparison with the foreign article. To show that all the world is not of one mind, however, we quote from a note recently received from a Brooklyn correspondent who, referring to American tin plates, says that objections to them are that they are left too greasy, that the coating of tin is rolled nearly all off and that the steel plate is not as good or as satisfactory as the old fashioned iron plate.

FORD & DONNELLY, Kokemo, Ind., have contracted for a branch plant at Montpelier, Ind., for the manufacture of tin plate machinery and appliances, a line of business they have lately taken up. They are also reported as about to enlarge their foundry at Kokomo.

CHARLES BRAV, mechanical engineer of the Lloyd Booth Company, Youngstown, Ohio, has been elected president and general manager of the recently organized Beaver Tin Plate Company, now erecting a large plant at New Lisbon, Ohio. The company will employ between 300 and 400 men, and their works are expected to be in operation early next year.

GUMMEY, SPERING & Co., Philadel. phia, have in contemplation the rolling of the black plates used in their tin plate works. Nothing definite has as yet been arrived at, but it is understood that arrangements have been made for the development of the enterprise at no distant date. The firm state that their business for the month of October exceeded somewhat the amount of business done during the same month of last year. Their sales of sheet iron were very large, and orders for their brands of tin plates were numerous. Their continuous roofing tin is in active demand, and their Anti-Pinhole bright plates are increasing in popularity.

THE PHILADELPHIA TIN PLATE WORKS are putting on the market an extra heavy double coated roofing plate, which they are calling Trotter's American New Method. This plate is made by a new method and is claimed to be equal to any roofing plate on the market of home or foreign manufacture. The black stock used in its manufacture is the Siemens Martin steel plate made and used by the operators of the Melyn Tin Works, Neath, South Wales, for their well known Melyn brands of plates. The proprietors of the works, Nathan Trotter & Co., report a good business done during the month of October, and that

they are running the works at their full capacity, with a prospect of continuing at that rate for some time. They say that their goods find a ready market and sales are made entirely upon quality.

British Board of Trade returns for October show exports of tin and terne plates during the month amounting to 41,000 tons, against 27,000 tone in the corresponding month of 1893. October shipments to the United States exhibit a marked increase, being 24,000 tons, as compared with 17,670 tons in September, 1894, and 13,860 tons in October of last year. The exports of tin plates from Great Britain to the United States during the last three years were as follows:

1894	1893.	1892.
Ton	s. Tons.	Tons.
January 18,29	6 23,498	17,554
February ,13,4	13 20,190	22,268
March16,9		22,789
April		31,061
May	9t 26,988	23,799
June17,2	47 26,759	23,550
July17,86		24.750
August 19,1	25 15,784	24,221
September	72 13,789	22,535
October 24,0		19,901
November		20,634
December	14,031	23,417
Totals 178,9	66 255,583	276,479

A special cable disparch from London, dated November 8, informs us that the Welsh tin plate makers propose to reduce their workmen's wages 25 per cent. Unless a concession is made by the workmen it is said that several of the works will probably close down.

THE AVONDALE TIN PLATE WORES of H. T. Griffiths & Co., Pontnewydd, Wales, were started up this week. They are a small two-mill concern.

A. A. Thomson & Co., 213 Water street, New York, report a very satisfactory demand for their special brand of American terne plate, the Central, on which two pots are kept constantly running at their tin plate works, 546 West Sixteenth street.

LATE PRESS REPORTS mention a rumor that is current among tin plate men to the effect that arbitration may be invited in the wage scale dispute.

THE CHARTIERS IRON & STEEL COM-PANY, Pittsburgh, are among the iron making concerns which, it is rumored, will erect tin plate plants in the near future.

Russell Sage is credited with the statement that the Manhattan Elevated Railroad Company have caused plans to be drawn for a double decked road to be operated by electricity in New York The scheme is said to have been aubmitted to prominent engineers of the United States and Europe and pronounced feasible. "The upper structure," said Mr. Sage, "could be constructed of light steel and used for express trains. The uprights could be placed by the side of those now in use, and would not disfigure the streets. The frame work could be very light, much lighter than the present structure, because by the aubstitution of electricity there would be no necessity to use heavy locomotives."

Herbert Praed, president of the Temescal tin mining syndicate, has recently made a careful investigation of the property in the interests of the English stockholdera. He will advise, it is reported, the thorough prospecting of the mines for gold, as ore found in various places would, he believes, pay scientific working.

### Some Reminiscences.

FOSSIL.

About the time when several prominent men were killed near Washington, D. C., by the bursting of a great gun called the Peace-Maker on board the United States man-of-war "Princeton," the writer was on his way to the South, cslled there because of a merchant's conviction that an imported Yankee boy would, by reason of that "cuteness" then credited to New Englanders, make him a better clerk than one born on the soil. Those were slavery days, and among the memories that I have of them a prominent one is that it took some time to learn the business relations then existing between the slave and master.

When walking in my freshness about the town in which I was located I heard the to me familiar sound of a tinner's hammer, which led me to enter the shop for the purpose of comparing Northern and Southern ways of work-There was a stalwart negro there who appeared to be boss and all hands, who greeted me as a possible customer and in answer to inquiries said that he run the concern in the interest of his master and owner, who was the then Governor of the State and resided at the capital nearly 100 miles away. This chattel mechanic was a good coppersmith, as appeared from the liquor stills in process of construction. He was honest, faithful and skillful, with the wages of his board and clothes. Perhaps the fact that he was likely to be kept on was an additional compensatlon.

Another of my colored acquaintances was Dr. M-s Jake, who carried on the blacksmithing business as if he owned it instead of being himself owned. Jake was a man of verestile talents, noted as a good workman at his trade, having also reputation as a veterinaria, and said to excel his master in practical dentistry as a tooth puller. He was the fifer of the local military company, and marched in his uniform at the head of the white folks as proudly as if he also was a man and a citizen. The slave The slave coschman of a local manufacturer was another of like name, but called Big Jake by way of distinction. The reader will bear in mind that these human cattle rarely had family names. Big Jake's private (?) business was the kiln drying of lumber, which he conducted by his master's consent at off times. Jim, belonging to Colonel McC., was a good friend of mine who with other darkles and several dogs used to assist me in nocturnal possum hunts whenever I found time to spend a night at his master's plantation. The Colonel had a tannery operated by his slaves, and I have known him to send Jim with a six-horse wagon load of leather to a market many miles away, and Jim would return from his business trip faithfully bringing back such property as the cash received, the team and him-self. Could any hired agent do more? Adam was a barber, with the loqua-ciousness of his calling, and would tell

Adam was a barber, with the loquaciousness of his calling, and would tell tough yarns with the confidence of sincerity. Among other notables who had passed under his brush was the then living and famous Texas Sam Houston. Said Adam: "Marse Houston he come for a shave, and 'fore takin' de cheer he jest pulled out he's bowie knife, an' ses he: 'Now, Adam, be mitey keerful. If you dror any blood on my face I'll make an extra hole in you!" Well, I went right along with the shave, cause

I reckoned he's only jest rootin me, an' when 'twas done he say, 'All right, Adam. The scare didn't make yer hand shake!' 'Marse Houston,' ses I, 'I don't got no call ter shake. Fore de Lord, if you raised that knife to me I got plenty time to cut yer throat.'"

In these days of labor agitation I call to mind these and other black business men of my before the war acquaintance and compare them with the workers of to-day, making my mental comments.

### Fire King Oll Heater.

A new oil hester, an illustration of which is shown herewith, has been

The oll fount is made of heavy brass, nickel plated, while the drum is of Russia iron, and is so arranged as to tilt back for the purpose of lighting the burner. The top ornament of the stove is an urn of conventional design. From an inspection of the cut it will be seen that the base and middle rings are connected with arms or supports, which relieve the oil fount of all weight or strain. The fancy top of the heater is made to swing, so that cooking may be done if desired.

At a recent meeting of the Nebraska Banker's Association, held at Omaha, I. A. Ford, president of the State Irrigation Society, said that there are 10,-



Fire King Oil Heater.

placed upon the market by A. Weiskittel & Son of Baltimore, Md. The heater stands 37 inches in hight and has a diameter of drum of 8 inches. The circular wick is about 3 inches in diameter and the oil fount has a capacity for 1 gallon, the claim being made that this is sufficient to burn from 10 to 12 hours, heating a room about 15 fect square with 10-foot ceiling. The castings of the stove are of attractive design and finished in either nickel or brass plating, as may be preferred. The mica frame is set with jewels, adding materially to the finish of the stove.

000,000 acres of low lands in the State of Nebraska that might be irrigated at an expense of \$2 per acre, and over 10,000,000 acres of high lands that might be watered at a cost not exceeding \$4 per acre. The meeting adopted a resolution in favor of the State irrigation system.

In his annual report to the Secretary of the Interior, Governor Hughes of Arizons states that when the irrigation works now in progress in that Territory are completed 1,000,000 acres will be added to its cultivable area.

### THE RETAIL STORE.

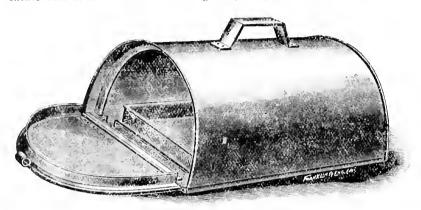
Your Partner's Son.

BY A PARTNER.

My partner had a son, a fellow ithout tact or "gumption," a failwithout tact or "gumption," a failure at school among boys of his own age, and yet without the sense to know that he was a failure. His father said to me: "I want to bring!

is to say he is paid a moderate salary and earns it.

When one member of a firm brings a son or other relative into the store he is taking unfair advantage of his partner, unless the young man is going into a department in charge of his father, where no one else will be annoyed by his failures.



The Champion Roaster .- Fig. 1.—General View of Roaster.

John here where I can make something out of him. He is doing no good at school and I want to have him where I can make him toe the scratch every time. There will be no charge for his work and I'll make him begin

at the bottom.

We are jobbers of Hardware with a good business. It has been my part to look after the running of the store more than it has my partner's. I felt that the burden of the boy's training was coming on me. I did not like the plan at all, yet it seemed unkind to object, and I thought if I had a boy I would probably want him in my owu

store.
So John came. He was a failure in himself and he made trouble with the others. He was pushed along into the order department long before he had shown any fitness as a packer and shipper, and he rarely got out an order but that he made a blunder.

His father was either too harsh with

him one day, so that we could not help but pity him, or passed over his blun-ders the next day as if they were of no



Fig. 2.-Longitudinat Section through Roaster.

consequence. He was with us two years before I finally insisted upon his being sent away, and those two years were as harmful to him as they were annoying to the rest of us.

He went to work for another house, had to do his work as it should be done, was advanced very slowly and is now a successful salesman on the road. That

The parent cannot, in the very nature of things, deal with his son as he does with other clerks, and the boy is rare who does not assume airs because he is the son of his father, rather than because he has proven himself to have ability.

A man cannot have one rule for his son and another rule for other clerks in the same department, consequently if

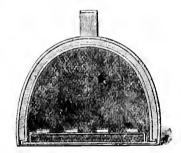


Fig. 3.—Cross Section through Rooster.

the boy is not up to the average demanded hitherto, the average is allowed to fall because of him.

Whether your partner shall bring his son into the store or not is a question that you should decide, not he. You have

you should decide, not he. You have been watching the boy and have made your estimate of his disposition and ability. If you see that his coming will not lower the discipline of the store, that he will not assume liberties because of his connection with one of the firm, you ought to suggest to your partner that you are willing the boy should be given a place.

It is a delicate question for you to answer if you wait for him to ask you if you would rather not have the boy: but it will cause vastly less trouble if you say, then and there, that you would rather not see the boy brought into the store, for if he is what you think it will make more trouble be-

tween you later.

Many partnerships are dissolved because of trouble growing out of partners' children. The sore spot having once started it rarely ever heals of itself, but grows larger until no physician can cure it.

If you agree with me thus far, how is it, supposing that it is you and not your partner who has the son? Are you sure that you are not imposing upon his good nature, and that you are not overlooking things in the young man because he is your son that you would not think of doing if he was Are you sure the boy is getting the training that would be his if in another store? Put yourself in your partner's place while you consider the situation, and then act.

### The Champion Roaster.

The accompanying illustrations show the Champion roaster, made by the Champion Roaster Company, Butte City, Mont., and for which the R E. Deitz Company, 60 Laight street, New York, are the Eastern agents. Fig. 1 shows the roaster complete, which is said to give excellent results, whether



Fig. 4.—Hot Air Cylinder.

used in connection with oil, gas or gasoline stoves, or used on the top of a coal stove, and which possesses special merit for use by camping parties, over a fire made from fuel of any character. Figs. 2 and 3 show sectional elevations, and Fig. 4 shows the hot air cylinder. By means of this hot air cylinder a circulation of air is maintained in the roaster, and the food is protected from any cooling influence that may affect the outer surface. Fig. 5 shows the grate used in the bottom of the roaster on which to place the food, thereby protecting it from direct contact with the hottest surface. It is said in use the noticest surface. It is said in doc the food cooked in the roaster requires no basting, and that it does equally excellent service in coooking game,



Fig. 5.—Grate Used'in Bottom of Roaster.

meat or fish. 'The roaster has been used with excellent satisfaction, both in private families and hotels, as well as by hunting, touring and fishing parties. It is made in three sizes, Nos. 1, 2 and 3, the respective dimensions of which are 8 x 10, 121 x 15 and 15 x 17 inches in width and length and special sizes are made to order. The Chicago office of the company is at Room 1425 Monadnock Block, Chicago.

### Riding Horse Tricycle.

The accompanying illustration shows a riding horse tricycle manufactured by the Quadruped Novelty Company, Canton, Ohio. The body is stamped in sheet metal and is mounted on rubber

between transfer ink papers in such a manner that whatever is writen on the top strip is reproduced in fac-simile on each of the two strips underneath. After the check is written a turn of the crank at the side draws the three stripe forward simultaneously,

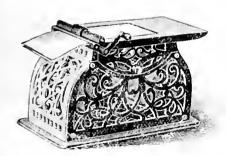


Riding Horse Tricycle.

tired wheels. The rider, seated in the saddle 2 feet from the ground, guides the tricycle by means of the reins and propels the vehicle as he would a bicycle, the legs of the horse responding to each revolution of the pedals, giving, it is claimed, an exact reproduction of the action of a horse in trotting. The horse is 36 inches high, neatly colored, with saddle, bridle, reins and neck collar, and has natural mane and tail. The tricycle is designed for the use of children from 3 to 10 years of age.

### Western Autograph Register.

The illustration herewith shown is of an Autograph register, put on the market by the Western Autograph Com-



Western Autograph Register.

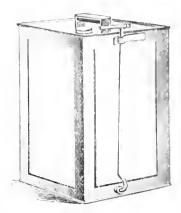
pany, St. Louis, Mo. The register consists of a neat iron case, nickel plated, in which are independently mounted on spindles three rolls of paper, two of which are blank while the other is appropriately printed and numbered for the class of transactions for which the register is to be used. The strips of paper from these rolls are brought forward together over the writing table in the top of the register, being passed

two passing out of the register to be used in completing the transaction, while the third is retained in the register, being rewound on the record core, making an inaccessible continuous record of all transactions. The two checks which have passed out of the register are torn off against a knife edge provided for the purpose, the original going to the purchaser while the duplicate is sent to the cashier. The register is referred to as being simple in construction, impossible to get out of order, and as being particularly adapted to the retail trade, doing away with the check book system which has been in use so long. It is also convenient, being attached to the counter, thus preventing the search for pencils, books, &c., to enter sales, &c. The manufacturers advise us that the register is glving the best of satisfaction to those using them.

### New Idea Oil and Gasoline Can.

An oil and gasoline can possessing a number of interesting features, so far as its construction is concerned, has recently been patented and placed on the market by A. F. Chable of 2827 Euclid avenue, Cleveland, Ohio. Fig. 1 of the illustrations represents a general view of the can, while Fig. 2 shows the manner in which the can may be emptied of its contents, as, for example, in filling lamps, stove tanks, &c. The emptying tube, which is the principal feature of the can, is formed of a single piece and is bent to the shape shown in Fig. 2. The position which the tube occupies at the side of the can is such as to bring the body portion of it close to the side, thus causing the tube to offer no obstruction as an attachment to the can. The lower inward bent portlon of the

tube is threaded, and is secured to the can by the use of a stuffing box. The latter is soldered in the can as near the bottom as possible, so that all the liquid



New Idea Oil and Gasoline Can.—Fig. 1.—General View of Can.

may be readily drawn off. As will be seen from an inspection of Fig. 1, the tube extends slightly above the top of the can, so that when in a raised position and out of use it effectually closes the can against discharge by reason of its length and position. When filling a vessel of any kind, it is only uccessary to release the tube at the top and lower it to a horizontal position, when the full pressure of the contents will be exerted and the liquid will be dis-

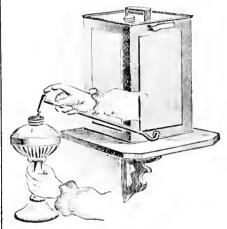


Fig. 2.—Manner of Emptying Can.

charged. When the vessel is filled, the flow is instantly stopped by restoring the tube to its upright position.

### MEMORANDA.

Adam Sharp of Sweetwater, Ill., has just opened a new hardware store at that place, and requests that copies of catalogues and price-lists from manufacturers and jobbers be sent to him.

MARK R. LEAVENWORTH, who was engaged in the stove business in Bridgeport, Conn., from 1869 to the present year, died on Thursday, November 1, aged 48 years.

THE FIRM of Wendorff & Uhls, 49 Broadway, Cleveland, Ohio, were dissolved by mutual consent. Louis Wendorff continues the business at the same location.

EUBANK & CLARK, Picdmont, Als., are adding stoves to their hardware business.

P. WALSH has opened a stove store and will do tinning and roofing business at Birmingham, Ala.

## STOVE TRADE NOTES.

### Southwestern Stove Manufacturers.

(By Telegraph.)

A meeting of the Southwestern stove manufacturers was held in the Southern Hotel, St. Louis, Mo., Wednesday and Thursday of this week, at which the following firms were represented:

Excelsior Mfg. Company, Buck's Stove & Range Company, Bridge & Beach Mfg. Company and Western Stove Mfg. Company of St. Louls, Mo.

Duffy-Trowbridge Stove Company, Hannibal, Mo.

Channon-Emery Stove Company, Comstock-Castle Stove Company, Thos. White Stove Company and Gem City Stove Company of Quincy, Ill.

Great Western Stove Works, Leavenworth, Kan.

Belleville Stove Works of Belleville, Ill.

Indianapolis Stove Company, Indianapolis, Ind.

Enterprise Stove Company of Vincennes, Ind.

H. Wetter Mfg. Company, Memphia, Tenn.

Phillips & Buttorff Mfg. Company, Nashville, Tenn.

Southern Stove Works and Indiana Stove Works of Evansville, Ind.

The meeting was called for the purpose of considering the outlook for 1895, and to perfect arrangements for furnishing to and obtaining from each stove manufacturer in the Southwest information as to the abuses that have existed in the slove trade, as to terms, freight allowances, &c., with a view to correcting same.

The question of moldera' wages was discussed, and while the molders are not looking for any advance now or in the immediate future, being satisfied to obtain steady employment, it was the expressed opinion of those present that the moldera would receive their share of any improvement which may take place. Prices were not touched on because it would be impossible, even if the manufacturers were so disposed, to enter into any agreement regarding prices in view of the laws which prevail in Missouri and Illinois.

Prices have been well maintained during the past season, and there was no just cause for complaint on this acore.

The meeting will probably result in the formation of a Southwestern association, which will hold meetings every 60 or 90 days, and which will in no wise corflict with the National Asso-

ciation, but will instead work in harmony with it.

The meeting adjourned Thursday evening to convene again at the call of the chair.

### The Western Stove Trade.

The tenor of advices from the atove and range manufacturers in Ohio, Indiana, Michigan and Kentucky are less uniform than for several weeks, and while there is still a confident tone the warm weather which has prevailed for a week or ten days accms to have curtailed the number of orders. some instances this has been of benefit, allowing the foundries to catch up with the accumulated business. Now, too, that there has been a decided lowering of temperature and a clearing of the political horizon, the lull experienced by some manufacturers will give place to the anticipated increase in the volume of business. Some foundries emphasize the point that it is necessary to produce at least ten per cent. more to reach the average sales in value of former years, caused principally by the reduction in prices of the manufactured goods, still the reduction in price of raw material causes but little change in the profits accured. There are other manufacturers, however, who have not reduced prices upon certain lines, preferring, as they express it, to improve the quality, thus giving the purchaser more for the same money.

But while some manufacturers make note of a falling off in the volume of trade there are others specially favored by location, who report that current orders are absorbing their entire output and that they are running full time and full force. Taken altogether, however, although the orders have not been kept up to the maximum, the volume of business not only compares favorably, but is in excess of that transacted during the corresponding weeks and months of last year.

One of our correspondents, commenting upon the lull resulting from the mild fall weather, predicts that "unless the winter is long and the cold severe there will likely be atocks of heating atoves left in the hands of manufacturers to carry over." Fortunstely the weather has already turned. That prices are low and competition strong seems to be evident from some of our advices, but such a state of affairs only contributes toward pushing manufacturers to give special care to workmanship and quality of the goods placed upon the market.

### The Blacker's Art.

BY G. R. APHITE.

In the fall season in our town there was always lots of orders left at the shop for a man to be sent to blacken a stove and put it up, and old Ike was a very popular artist. He had been brought up on "pure plumbago" and water which he mixed to the consistency of cream and carefully applied it to the entire surface of the stove. Then while it was drying to the proper condition he looked after the loose parts, lega, covers, centers, urns, &c. right moment to begin the shine was before the coating had lost all of its moisture, then with a broom the stove was touched up all over. After the shine had developed as far as possible with this broom a second longer and dry broom was brought into play. This was applied more leisurely, as it takes some breath and is not child's play to use a blacker's broom. Next came his brushes, and with one in each hand he went all over the stove and if the weather was not too damp a shine of some magnificence continued to grow. The final touches were put on with two dry brushes, which he was very careful to keep clean and dry. Ike left town and farmed for several years, but one Saturday afternoon he came to town and naturally visited his old friends. He found Dick, an old time devotee of the art, just putting the blacking on a big cooking stove, and after he got it covered about half their conversation became so interesting that they sat down, and pretty soon Ike noticed the blacking had dried, and said, "You'll have a fine time with that stove." put the blacking on the rest of the stove and conversed again till the stove was

Ike aaid, "You'll have a gray old shine there, and in old times the boss wouldn'tstsndthat," but Dick snswered, "You wait and see," and he polished up the driest part in a little less than no time to a brilliant black luster. Ike's eyes started out in smazement. He wanted to know what kind of blacking he used, how he mixed it and who put him on to the snap. Dick told him this was imported graphite from Ceylon, pulverlzed in a mill, then mixed with asphaltum varnish and a little oil of sassafras till it was as thick as a good stiff clay. In using it a chunk as big as an egg was dissolved in benzine and put on with a brush. The benzine was what made it dry so quickly, and he used deodorized so as to avoid the smell. The oil of sassafras was used to kill the smell of the asphaltum and benzine when the first fire was lighted

in the atove.

Ike absorbed it all and concluded to surprise the women folks at the farm, ao got from Dick a can of benzine and a big lump of the paste. Sunday morning he got up early and blackened the kitchen atove in fine style and was surprised to see how much easier it was to do it than with the old blacking. The women folks all voted Ike a true artist and wanted some of the blacking, so he explained all about it and then a fire was built.

The next week the women blacked that atove with a fire in It, and now Ike is in disgrace for putting up a job upon innocent women. As a brush well saturated was applied to the stove a quantity dropped in a hole broken in the lifter socket and so frightened the women that a correct account was never secured. They say it blowed the stove up and set the house afire, but they live in the same house and use the same stove yet, so that must be wrong. Nobody was hurt, and when Ike told Dick about it Dick said his old woman had a similar experience, though he had told her never to use it on a hot stove.

## The Abram Cox Stove Company,

Philadelphia, are sending out a new edition of "Our Furnace Book." This title in gilt letters appears on the salmon colored cover of a 72 page catalogue of Novelty furnace, heaters and ranges. On the upper corner, in red, are the words, "Successful heating upon common sense principles." On the lower corner, in green ink, is, "The compliments of the Abram Cox Stove Company," while their trade-mark and the addresses of their different offices, in text of the book is not only interesting reading, but is arranged in such a manner as to be very attractive. The first pages are devoted to the subject of heating and ventilation and followed by the Novelty furnace, which is the founder of the line, the Ideal furnace occupying the front position, after which follow Novelty A, Splendid Novelty, Success Novelty and Grand Novelty, accompanied by tables of their dimensions and approximate heating capacity. After these come the Ideal Novelty, as a combination heater for hot air and hot water, a sectional view showing the interior arrangement and other engravings showing the different forms of the hot water section used in this furnace. Following these is the Fireside, a very pretty open fire place heater, said to be adapted for all the different fuels and for natural gas. Next in the book is the Cuisine Novelty, a wrought steel French range, shown with single and double oven. This is followed by the Novelty Kitchener and the Model Novelty, the former being shown in many different forms. The Valley Novelty is a strictly portable range, set on feet and adapted for the use of a horizontal boiler. These are followed by several pages on "How to select and set a furnace," and a number of testimonials from those who have used the Novelty with satisfaction. The last page calls attention to the Novelty circulator and Novelty steam generator for hot water and steam heating.

### ODD PLATES.

Howard Sheppard of Isaac A. Sheppard & Co., Philadelphia, Ps., talked Paragon furnaces and Fidelity ranges with Wm. Kerby, manager of their New York house on Peck Slip, last Wednesday.

Mahood & Co., 14 North Second street, Philadelphia, Pa., report good sales on the Ladies' Delight oil heaters and that the Darby Square and Social Franklin heating stoves have become very popular with the trade.

SEVERAL ATTRACTIVE BOOKLETS are received from the Abram Cox Stove Company, Philadelphia. "Progress in

Heating" is the title of one eight-page pamphlet in dark green covers. back cover has an attractive half tone engraving of a residence which is heated by one of their apparatus. The book treats of heating with hot air furnaces and gives some information with reference to the size of hot air flues, construction of cold air pits and ducts and the necessity of the smoke flue having a good draft. "Combination Heating, Hot Air and Hot Water" is the title of another booklet setting forth the advantages of their Novelty combination apparatus. The text treats in an entertaining manner of the advantages of the combination system, the ventilation afforded by the hot air and the positive heat secured by hot water radiators. The last cover shows a very pretty residence, under which is the statement, "Heated by an Ideal Combination Heater." An eight page leaflet bearing the title, "Evidence," is an example of the advertising matter furnished to their customers. The opening page is the record of an action of the Novelty furnace before the Court of Public Opinion, signed by the clerk of the court "Ive Trydem." Several pages following are devoted to the testimony of the witnesses, which are letters expressing the satisfaction that has attended the use of the Novelty heating apparatus.

WM. THOMSON, 64 North Second street, Philadelphia, Pa., sheds Sunshine on all who visit him, both by his genial countenance and by the line of stoves and ranges which he runs.

Hansell & Belson, 144 North second street, Philadelphia, Pa., have a line of goods to meet all the requirements of the dealer in stoves for gas, oil and gasoline, as well as for coal, and all of the furniture to equip them. In addition, they carry everything in the supply line, blacking, bolts, mica, &c.

THE WEBB, STEPHENSON COMPANY, Nashville, Tenn., austained a loss of \$3000 by a fire in their stove store.

CHARLES FAWCETT, atove and hollow ware manufacturer, of Sackville, N. B., whose factory was destroyed by fire a short time ago, has rebuilt the works on a more extensive scale, doubling his former capacity.

NOTHING that has recently happened in the stove trade has attracted so much attention as the 5 per cent. advance in wages by the Indianapolis Stove Company of Indianapolis, Ind. It was first published as an ordinary item of news in the daily papers. But as it came during the hight of a political campaign, when one party was grasping at every item showing the least sign of an improvement in business, it was at once made the subject of editorial remarks in numberless dailies and weeklies all over the country. The name of the Indian-apolis Stove Company thus became at The name of the Indianone stroke almost a household word. The president of the company could not be accused of having made the advance merely for polltical effect, as he is a working member of the opposite party. If it was designed as an advertisement it could not have been sprung more shrewdly nor at a more opportune time.

F. M. BORDEN & BROTHER, Philadelphia, adorn the back of their envelopes with the words "Persistent Perseverance Provides Prosperity," using large initial letters and printing them in red ink. One of their New Jersey customers recently ordered some repairs and a stove, and as the shipment of the stove was delayed he tele-

graphed at their expense, "Please add 'Promptness' to the back of your envelope and ship stove." The telegram was the occasion of no little mirth on Second street, as it was freely shown to the stove trade.

AT THE RECENT Texas State Fair, held at Dallas, Texas, the Texas Farm and Ranch opened a baby show, at which the babies of farmers only were on exhibition, the city babies being cruelly excluded. There were all kinds of babies at the fair, however, as the following effusion will testify:

There were babies big and babies small, Babes that laugh and babes that squall, Babes with eyes of inidinght hine, Babes with eyes of dewy blue, Babes cooing, babes crylog, Babes kicking, babes crylog, Yet all so sweet, so dear, so pretty, That one thought, Oh what a pity, That of this cluster we've got to say, Which four will bear the awards away.

There were four prizes offered, the chief of which consisted of a Charter Oak stove made by the Excelsior Mfg. Company of St. Louis, Mo., and presented to the fortunate baby by the proprietors of the Texas Farm and Ranch. Miss Evelyn Harris of Richardson, Texas, was the prize winner who received the Charter Oak Stove. Sam Shannon, the Texas representative of the Excelsion Mfg. Company, while a single man, displayed such knowledge in bringing forward the fine points of the babies on exhibition, that many of his friends are of the opinion that the genial Sam was anxions to create a favorable impression on those fair daughters of Texas who were present.

THE WORLD'S BEST FURNACE COMPANY, 12 and 14 Washington avenue, North, Minneapolis, Minn., claim that the World's Best steel plate heater is the only furnace made with a low down radiator around the fire pot. It is said that this form of construction results in a great saving of fuel. The company issue a catalogue in which this warm air furnace is illustrated and described.

PRESS DISPATCHES from Lorain, Ohio, under late date are to the effect that the creditors of the National Vapor Stove Company, reference to which was made in these columns last week, have promised to organize at once and start the works after all legal complications have been settled. It is now expected that the plant will be in operation by January 1.

THE BELLAIRE STOVE COMPANY of Bellaire, Onlo, have just issued a new catalogue of their specialties, which is of such a nature as will interest dealers generally.

THE DETROIT STOVE WORKS OF Detroit, Mich., state that they are continually receiving a large number of inquiries from dealers who have not handled their goods neretofore. This leads the company to believe that the large amount of newspaper advertising of the Jewel line in the daily and weekly press of the country is accomplishing its purpose.

BLACK & GERMER of Eric, Pa., are meeting with a good demand for their leading specialties and are now running their works double turn.

THE JOSEPH BELL STOVE & RANGE COMPANY OF Muncie, Ind., write under recent date as follows: "Our Dandy Arlington and Family Arlington ateel range aecms to meet with special favor. We have improved the ornsmentation and finish as well as the constructive features of these steel ranges. We have also enlarged our assortment of goods

by the addition of lines of coal and wood cooks and stoves for natural gas, as well as high finish base heaters for soft coal."

L. B Jones, successor to the Security Gas & Vapor Stove Company, 108-110 South Commercial street, St. Louis, Mo., has issued a supplement relating to the Security gas atove, the text being largely made up of "information to those who contemplate purchasing a gas cook stove or range." The merits of the Security gas stove are set forth, while numerous testimonials which are presented show the favor with which the stove is regarded by the trade.

THE MAJESTIC RANGE in its various styles and sizes forms a prominent feature of the stove display made in the ware roems of Foster, Stevens & Co. of Grand Rapids, Mich. A short time ago the firm practically demonstrated the merits of this range before a large audience, which was present by special tuvitation. A Miss Foley performed the duties of chef, while numerous young ladies, daintily attired in white caps and aprons, served the guests with "golden coffee and steaming hot biscuits and butter," as a local paper de-The event was the subject scribes it. of a very flattering notice in the Grand Rapids Democrat, and the firm have reason to feel gratified at the success of the exhibition. We understand that daily receptions of this nature were given, at which large numbers were present.

WE ARE INDEBTED to Charles H. Andrews & Co., managers of the Boston, Mass., branch of the Resding Stove Works, for copies of some very prettily decorated cards, advertising Sunshine stoves and ranges, Othello and New Mayflower ranges, Torrid furnace and open fire grates. One side of each card is embellished with a colored design of a character which cannot fail to attract We likewise have from the same source a pamphlet relating to the Torrid steel plate warm air furnace, and presenting in addition to an illustrated description of the heater a long list of testimonial letters from those who have used it. There are also separate circulars relating to the Torrid furnace, the Royal Sunshine parlor stove and the Ideal Sunshine range, the latter being a new construction The ornamentation is rich and effective, the oven door carrying a panel supporting the name of the range. The Ideal Sunshine is made in five sizes and the usual modifications. The fire box is oval shaped and lined with fire brick or heavy cast iron sections, as may be preferred. The grate is of the most approved pattern, while the water front is made of special metal and has a large capacity for heating water. The range is also made for burning wood. There are, furthermore, price-lists of the Ideal Sunshine range and the Royal Sunshine surface burner, bearing date of October of the present year. Finally we have to acknowledge the receipt of a handsome entalogue issued by the Reading Stove Works and comprising over 240 pages of letter press, substantially bound in cloth cov-ETS.

LUTHER & LEDERHOS, 30 Cliff street, New York, are the assignces of a patent granted to Abner B. Hutchins of New York City for a gas stove possessing a number of interesting features. The heater consists of a sectional perforated casing, either conical or pyramidal in shape, closely surrounding a distributing chamber conforming in shape thereto and elevated above its floor. Between the lower horizontal wall of

the chamber and the base plate is a space which serves as a passage for the air and gas mixture when the device is The arrangement is such that in use. the mixture is evenly distributed to the burner holes in the casing. The gas is supplied to the stove by means of a pipe, from whence it passes to the mixing chamber, and from there to the burner, where it is distributed in a narrow sheet to the burner holes. By this arrangement of distributor it is claimed that the mixture can be ignited first directly above the base plate and again at the center and upper portion of the structure, while if it were not for the central distributor the mixture could only be lighted at the top.

The Dayton Mfg. Company, Dayton, Ohio, have issued an announcement to the vapor stove trade of the country, to the effect that they have purchased from the Covington Brass Mfg. Company of Covington, Ky., "all material, tools, machinery, patterns, &c., used in the manufacture of the Insurance gasoline stove." It is also stated that the company have entered into a contract by the terms of which they secure absolutely the exclusive right to manufacture the Insurance stove under all patents owned and controlled by the A. J. English Company of Cincinnati. The Dayton Mfg. Company will proceed immediately with the production of this stove "in the large way which is warranted by the present heavy demand for next season." The company expect soon to have ready all printed matter for the season of 1895, which will be distributed to the trade.

BRIDGEFORD & Co., Louisville, Ky., report that the improvement noted for September has continued during the month of October, although on account of the mild weather the demand for stoves has not been quite up to expections.

THE FOSTER STOVE COMPANY of Ironton, Ohio, advise us that dealers, generally, appear to be ordering to replenish their stock as sales are made.

THE HOME STOVE COMPANY of Indisnapolis are running their foundries full every day and have all the orders they can handle.

THE LEXINOTON FOUNDRY COMPANY of Lexington, Ky., have lately opened a retail department for the city trade which is consuming a large quantity of both cooking and heating stoves and ranges. In view of future prospects the company are now erecting a large wareroom, also a new building for storing patterns, &c. They believe that 1895 will bring a heavy demand for stoves in their line.

THE MILWAUKEE GAS STOVE COM-PANY of Milwaukee, Wis., issue a very pretty little catalogue of their Perfection gas radiators, heaters and parlor grates, for the season of 1894-95. gas grates are so constructed that very high efficiency is obtained by the pow erful radiation of a glowing asbestos back and by the circulation of air between Leated surfaces, while all products of combustion and impurities of the air pass up the chimney through a positive flue, easily controlled by a damper, providing perfect ventilation. A combination valve is used, which makes each grate adaptable at once for any kind of artificial as well as natural gas, or gas at any pressure. The gas connections are hidden and can be made when the grate is in place without removing a bolt. The design is ar-tistic, the effect of which is hight-

ened by a variety of beautiful finishes. The outward display of a name or number is avoided. The Perfection number is avoided. gas radiator is furnished with four, six or eight flues, and is intended for artificial gas only. These radiators are of highly ornamental design, and with the Perfection valve may be made to burn either a pure illuminating or a blue flame or a combination of both. Other gas heaters shown in the catalogue are three sizes of round heaters with asbestos fronts for natural or artificial gas; three sizes of round heaters with polished copper reflector fronts, for artificial gas only; a square reflector henter for artificial gas and a square asbestos heater for natural or artificial gas. The company issue a separate catalogue descriptive of their gas ranges and specialties.

Fred. S. Bolte & Co., stove merchants, 915 North Broadway, St. Louis, Mo., exhibit in one of their windows an aluminum stove. It is one of Moore's air tight heaters, made by the Joliet Stove Works of Joliet, Ili. The weight of the stove is but 60 pounds, whereas the same stove made in iron weighs 165 pounds. This is claimed to be the first stove ever made entirely of aluminum.

The plethors of money continues unabated. Saturday's statement of the New York banks showed, however, an increase in loans to the extent of \$1,-129,300, but deposits at the same time increased \$809,700. The banks now hold \$63,204,275 surplus reserve over the legal requirement; and, notwithstanding the recent action of the banks in reducing interest on out-of-town deposits, the flow of money from th interior appears to be unchecked.

Officials of the Pennsylvania Railroad Company have decided to increase its standard of weight of steel rails on its main line from 85 pounds to 100 pounds. On the recent tour of inspection this matter was given considerable attention, and the change was only deemed advisable after the matter had been thoroughly discussed. The change is to go into effect next year, and all new rails between Jersey City and Pitts-burgh will be of the new standard. The increase in weight is principally due to the heavier locomotives which the company have gradually been acquiring, besides the increase in speed. The 100 pound standard is a big jump from the weight rail used years ago. Then 56 pounds was considered heavy enough, but soon the weight was increased to 67, then to 75, and then to 85 pounds. The last weight has been the standard for several years, and to all appearance has met the requirements. A few years ago 100-pound rails were placed in various sections of the road for experimental purposes, and as they fulfilled all that was expected of them, it was decided to use this weight as the standard until further Besides increasing the weight there will be, in all probability, a change in the length of the rail. At present a 30-foot one is generally used, although in some places they are twice that length. The length of the majority of the new rails will be 60 feet. This is a saving of joints, thus giving a smoother surface.

It is calculated the Government expenditure for the month of October will exceed receipts by nearly \$10,000,000.

# TRADE REPORT.

### The Iron Market.

As the result of the elections, an improvement in business is expected by the majority of those who control large industrial operations. That feeling alone may go far toward bringing it about. In calmer mood the somewhat extravagant predictions now current may be withdrawn. But there is very good foundation for the hope of better times to come.

All doubt is now removed concerning any unwise legislation on the currency question, a fact which will tell a good deal with the timid holders of idle money. Then there is the further assurance that there will be no further hostile action on the tariff for a long time to come. With these perplexing questions out of the way capital may begin to look about for a chance to earn good interest instead of being chiefly concerned with the safety of the principal.

Many meritorious schemes have been lying dormant since the panic. The time seems to be approaching when some of them may be taken up. We heard lately of instances in which projects have had a hearing, which is a good deal more than was granted a month or two ago. It is clear that confidence is growing slowly, and it is the most important fruit of the elections that that process may be quickened in the near future.

Pig Iron.—Dealers in the Chicago district unite in reporting a very moderate volume of business. Inquiries are good, however, and trade is by no means ended for the fall season. Excellent orders are in prospect in local Coke Iron which will be closed within the coming ten days. Some Southern sales have recently been made in Chicago in sufficient quantities to indicate that a reasonable amount of business may still be expected in this locality by Southern makers. Prices on Southern Iron have been reduced with a view to increasing the trade in this class of Iron. Lake Superior Charcoal continues quiet. Quotations are given as follows for cash:

Lake Superior Charcoal	\$13.00 @	\$15.00
Local Coke Foundry, No. 1	10.25 @	11.00
Local Coke Foundry, No. 2	10.00 @	10.25
Local Coke Foundry, No. 3	9.50 @	10.00
Local Scotch	10.25 @	11.00
Obio Strong Softeners Ne. 1	13.00 @	13.50
Bouthern Silvery, No. 1	11.50 @	11.75
Southern Silvery, No. 2	11.25 @	11.50
Southern Coke, No. 2	10.25 @	10.50
Southern Coke, No. 3	9.75 @	10.25
Bouthern, No. 1, Soft	10.25 @	10.50
Southern, No. 2, Soft	9.75 @	10.25
Alabama Car Wheel	17.50 @	18.00
Jackson County Silvery	15.50 @	16.00
Other Ohio Silvery	14.25 @	14.50

The tremendous production of Pig Iron in the Pittsburgh district during the past two or three mouths is beginning to tell and several Valley furnaces are piling Iron. It is understood that this is being done in preference to forcing their Iron on the market and thus pushing values down, and also for the reason that some furnacemen believe that prices of Pig about the first of the year will be better than they are now. A slightly better demand is noted for Foundry Iron, due to the fact that work among

the foundries is a little more plentiful. We quote the market as follows:

Advices from Cincinnati indicate that there has been only a jobbing demand for Pig Iron during the week, and it was scattered through that district, the North and to a very moderate extent the East. There have been bids made at lower prices for larger quantities, although not for any very large lot, which bids were declined by the Southern furnaces. That the market is quiet all admit, but there is no disposition apparent to accept lower prices. There is much complaint that ears in the South are so generally required for moving cotton that the movements of Pig Iron are restricted, but there is no urging to ship Pig Iron in this direction. There is no new factor in the consumptive side of the market, and dullness is the prominent feature all around. Quotations are as follows:

Southern Coke, No. 1	10.00 @	€10.25
Southern Coke, No. 2 Southern Coke, No. 3	8.75 0	9.00
Ohio Soft Stone Coal, No. 1 Ohio Soft Stone Coal, No. 2	14.50 @	15.00
Lake Superior Coke, No. 1 Lake Superior Coke, No. 2	12.00 a	12.50
Hanging Rock Charcoal, No. 1	16.00 a	16.50
Hanging Rock Charcoal, No. 2 Tennessee Charcoal, No. 1	13.00 @	13.50
Tennessee Charcoal, No. 2 Standard Southern Car Wheel	12.00 @	12.50
Lake Superior Car Wheel and		
Malleable	14.20 Q	14.75

Since our last report from St. Louis sales have not increased very ma terislly in that market. There are a number of inquiries in the market which if they result in sales will make a good showing. Consumers state that they are able to shade the market and continue to buy as their actual requirements demand. There is a gradual increase in the demand from all quarters, and while there is no great improvement anticipated until after the turn of the year a fairly satisfactory business seems assured for the next two months. We quote as follows for eash, f.o.b. cars St. Louis:

 Sonthern Coke, No. 1 Foundry
 \$10.75 \$2 \$11.00

 Southern Coke, No. 2 Foundry
 9.75 \$2 \$10.00

 Southern Coke, No. 3 Foundry
 9.50 \$2 \$9.75

 Southern Coke, No. 3 Foundry
 9.50 \$2 \$9.75

 Southern Car Wheel
 16.50 \$2 \$17.00

### Metal Market.

Pig Tin,—At the end of last week wholessle prices for Straits Tin were forced up for both prompt and future delivery. Since then a reaction has taken place to about the level of a week ago. Several hundred tons changed hands in the meantime, the bulk of it in the nature of closing out old deals. Otherwise there has been little to note in the market. Jobbers and consumers have purchased very conservatively and seem to be bothered little by the ups and downs of the speculative market, since with the strongest complexion put upon the statistical position it is found that there is not only enough Tin to go around, but some to spare. In fact, the visible supply is

still abnormally large and the records indicate that the deliveries latterly have swelled the "invisible" supply in no small degree. At the close of the week the market was unsettled. Jobbers' price for small lots of Straits Pig from store is about 17¢ P. Ib.

Copper.—The market remains in statu quo. There has been little or nothing more than mere routine business and of the most commonplace type, rarely involving more than small lots for immediate or early delivery. This class of orders has been filled at about the prices previously quoted—namely,  $10\frac{3}{4}$ ? B lb for Lake Ingot.

Sheet Copper.—Buying is at present very moderate and inquiry has been somewhat less in volume during the week under review. Prices remain at their former figures. Small jobbing lots of Sheet Copper are usually quoted on a net basis of 15¢ % lb.

Pig Lead.—There is perhaps a shade better tone to the market, but business here has been of moderate proportions and the demand only fair. The firmness would seem to be due chiefly to Western business that amounted to considerable in the aggregate. The price asked for small retail lots of American Pig is  $3\frac{1}{2}\phi$  @  $3\frac{5}{2}\phi$ .  $\widetilde{\psi}$  lb.

Lead Pipe and Sheet—The demand for manufactured Lead of all kinds in this market is described as extremely tame. Prices keep at their late low level. Sheet Lead and Lead Pipe are maintained at the regular list prices with 20 % off.

Spelter.—Business has been fair, and the demand is somewhat better, making upon the whole quite a firm market. For small parcels of Western jobbers ask about  $4\frac{1}{4}\phi$  ? Ib. Special brands bring the usual premium.

Antimony.—There has been some improvement in sales, but wholesale prices are still rather soft. Small lots go at 103\$ for Cookson's and 9\$\$ for Hallett's.

Tin Plate. — A somewhat quieter market was noted in the past week. Election interests have apparently interfered with business to some extent; but this disturbing cause being now out of the way, a brisker demand is looked for in the coming week. Deslings have been on a moderate scale and individual purchases are still confined to extremely conservative lines. Futures have been almost wholly neglected, notwithstanding the fact that Plates are now almost down to rock bottom in price. The supply of imported Plates bere has increased, and the assortment, especially of Ternes, is rather more liberal. The lines of Charcoal and Coke Tins in stock are, however, some-what broken, and certain descriptions, notably special sizes of Charcoal Wasters. are extremely searce. Consumption keeps pace very evenly with arrivals and receipts from domestic works. Imported Ternes are in fairly liberal supply. The recent wet weather has caused a material falling off in the demand for Roofing Plates. Prices show no radical change but incline to

weakness, in sympathy with their falling tendency on the other side.

A special London cable dispatch of November 7 to The Iron Age reports on the British Tin Plate market as follows: Tin Plate has been dull, and prices still show a declining tendency. A fair business was done at intervals, when makers met buyers' views. Cokes and Charcoals are nominally 3 pence lower. Ternes are about 6 pence down. Light weights continue to be in relatively best demand. Stocks at Swansea are now about 230,000 boxes. Swansea quotations are as follows:

Bessemer Cokes, IC	9	30 K	10,
Stemens Cokes, IC	10	0	10/3
J. B. Steel Cokes, IC			
Dean Ternes, 20 x 28			
Charcoals, IC	11	uı	Э.

Sheets is not as urgent as it was, but for prompt shipment mills and their agents are able to get very close to the highest prices recently ruling. The jobbing demand for Galvanized Sheets is quite active and prompt shipments are not easy to secure. Dealers complain that it is almost impossible to get orders filled by the mills within two or three weeks. Prices do not, however, give any indication of improvement. Small lots from store are quoted at 75 and 5 % @ 75 and 10 % off. For small retail quantities of No. 27 Common Black Iron 2.65 \$\phi\$ is about the ruling quotation in this market, and 3\$\phi\$ for R. G. cleaned.

### Chicago Report.

Scrap.—The market is not as active as it has been. Dealers quote the following list of buying prices, Chicago delivery:

acii. (cij.		
Per n	et ton.	Per Ib
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	6.00	
Maileable Cast	5.00	
Stove Plate (free of burnt)	4.00	
Burnt Iron and Grate Bars	300	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&c	3.00	
Old Boilers—whole (Iron)	3.00	
" (Iron)—cut in single	0.00	
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler	0,00	••••
Tubes	5.00	
Cast Borings	3.00	
	4,00	
Turnings Horseshoes	7.00	
	1,00	6 €
Copper Bottoms		7 0
Copper Clips and Heavy		
Heavy Brass		6 9
Light Brass		
Pipe Lead		$214\phi$
Tea Lead		21 90
Zinc		2140
Rubber		$3\frac{1}{2}\varphi$

Anthracite.—Business has been quiet the past week. Carload lots of 12 net tons or over are quoted as follows:

	F	Egg, Sto.
	Grate.	and Ch.
Chicago, Itt	\$5 00	\$5,25
Milwaukee, Wis	5.00	5,25
Kansas City, Mo	8.20	8.45
Council Bluffs, lowa	8.20	8,45
Lincoln, Neb	8,35	8,60
Sioux City, Iowa	8,20	8.45
Aberdeen, S. Dak	8.25	8.50
Dubuque, Iowa	6,30	6,55
Madison, Wis	6.50	6.75
St. Paul, Minn	7.50	7,75
Burlington, Iowa	6.50	6.75
Des Moines, Iowa	7.95	8,20
Davenport, lowa	6.30	6,55
St. Joseph, Mo	8.20	8.45
Leavenworth, Kan	8,20	8.45
Omaha, Neb	8.20	8,45

Colorado Anthracite.

COLORADO FUEL & IRON COMPANY.

Denver	\$8.00
Pueblo	5,00
Colorado Springs,	8,00
Leadville	5.00

### CONDITION OF THE

### Hardware Trade.

THE ATTENTION GIVEN to political matters during the past few weeks probably interfered somethe volume of business, what with which, notwithstanding, continues fair though not heavy. The steady, and in the aggregate large, consumption of goods which is constantly going on ealls for frequent replenishing of stocks. but merchants are very careful not to buy in excess of their immediate requirements. The year has shown a marked decline in the prices of so many goods and the market is still in so ground and the market is start that irregular and unsettled a state that they are not disposed to purchase Hardware which they may be called upon to carry until it can be replaced at lower figures. The near approach of the annual inventory also deters them from adding unnecessarily to their stock. A fair proportion of curtheir stock. A fair proportion of current business is for holiday and winter goods, but miscellaneous and heavy Hardware is also receiving its share of attention. In view of the result of the election an increase of confidence and an improvement in the tone of the market is anticipated.

Advices from Chicago.—The Shelf Hardware trade is in reasonably good condition. The demand is as good condition. The demand is as large as could be expected under the conditions which have been pre-vailing this year. The volume of business is much beyond that of last year at this time, although it is still considerably behind that of 1892. The month thus far shows indications of keeping up to the volume of business in October. Some jobbers are in receipt of good orders for seasonable goods, such as Stove Boards, Coal Hods and Stove Furniture, but others report that the very mild weather re-cently prevailing has considerably in-terfered with their trade in articles of this character. A cold snap is ardently desired, as it is expected to greatly increase the movement in this line. The demand for Tinware and House Furnishing Goods has expanded remarkably during the past two weeks. Factories are still in arrears on shipments. Orders are of the same character as heretofore, being made up almost entirely of broken packages but they make up in number what they lack in Ware report a steadily augmented trade. Sidney Shepard & Co. are greatly pleased with the success attending their new departure in this line.

### Notes on Prices.

Heavy Hardware is quiet.

Wire Nails.—There is little reason for complaint in regard to the volume of business, and some large orders and many smaller ones have been placed with manufacturers during the past week or two. In the matter of prices there is little new to be reported. Ninety five cents, f.o.b. at mill, for carload lots, is a general price, but it is frequently slightly shaded, and the price of 90 cents is being made on attractive orders.

Advices from Chicago. — Manufacturers' agenta report an improved volume of business. Inquiries are much larger and sales have been decidedly better. Orders are particularly good from localities which can be reached by water, but buyers from other sections are also taking more than for some little time. Factory prices are still irregular. Job-

bers quote small lots from stock a \$1.10.

Cut Nails.—The Cut Nail market is without important change. Small lots from store in New York are quoted at \$1 to \$1.05. The demand is fair and the tone of the market pretty steady.

Advices from Chicago.—The demand on manufacturers is still confined to earload lots, but they are received in sufficient number to keep the local works well employed. Outside manufacturers have recently made some efforts to take part of the trade in this locality, but owing to the fact that they seek orders for 1000 keg lots or more they have been unsuccessful. Jobbers continue to quote small lots at \$1 from stock.

Barb Wire.—The Barb Wire market is quiet, with few inquiries for immediate delivery. There is more or less negotiation going on in regard to orders for next season. The market is represented by the following quotations on Four-Point Galvanized in carload lots, at the points named: Pittsburgh, \$1.95 to \$2; Cleveland, \$2 to \$2.05; Cinclinati, Allentown, Chicago and New York, \$2.10 to \$2.15.

Advices from Chicago.—Business is quiet both with respect to orders for spring shipment and for fall delivery. Less effort is being made now to book orders for spring delivery by offering favorable terms of shipment. Manufacturers are evidently of the opinion that they will be able to control the trade more closely than in the past and appear disposed to wait for business in the natural way. Manufacturers and jobbers alike report light sales. Small lots of Gslvanized continue to be quoted at \$2.25 from stock and \$2.15 from factory. The Plain Wire trade is much better than that in Barb Wire. Manufacturing consumers are buying quite freely.

Glass .- The condition of the American Window Glass market shows little improvement since our report of last week, and quotations, it is reported, have been made which appear unnecessarily low. It is understood that prices have been made in the West at less than 90 per cent. discount for both single and double strength Glass in large lots. Such cases are probably the exception rather than the rule, as Pittsburgh and Eastern manufacturers, it is believed, are less ready to make concessions on quoted prices than they have been in the past. Although it is difficult to detect an improvement in this direction it is believed that prices, on an average over the country, are firmer, and that an improvement may be looked for.

Iron Rivets.—The American Screw Company, Atlas Tack Corporation and other manufacturers of Iron Rivets have adopted a revised list under date November 1, which is given in full in the following columns. It will be observed that there are a number of changes in list prices. The discounts announced by the manufacturers are as follows: Sixty five per cent. on Norway Iron Rivets, and 75 per cent. on Soft Steel or second quality Rivets. The American Screw Company issue a discount sheet under date November 1, in which they quote Rivets under the new list as follows.

Norway Rivets:	Per cent.
Ordinary, in bulk	65
Coopers' "	00
Thousand, "	
Thousand, in papers	ers of 100 . 65
Block and Carriage, in pap	(18
Hame	
Belt, with burrs	
Ray State Rivets	

#### Iron Rivels in Bulk,

#### Price Per Pound.

		Length of Rivets.												
Size.	lý.	15 30	7. 16	13 /32	84	11/32	8/16	9./32	1,4	7 32	3, 16	0 93	1 4	3 3.2
7/3/4 3/3/2	\$0.45 .15 .15   46 .15   46 .16   16 .16   16 .16   16 .17 .18   19 .20 .21 .27	\$0.18 1616 1616 1616 1616 16 17 17 17 17 18 19 20 22 24 27 30	.161.2		\$0.161-9 .161-9 .17 .17 .18 .19 .19 .19 .20 .21 .23 .27 .20 .34 .40	\$0.16lg	\$0.17	80.15 20 20 20 20 20 20 20 20 20 20 20 20 20			.21	\$0,20 ,23 ,24 ,24 ,25 ,27 ,35 ,40 ,45	.23 .25 .26 .29 .37 .42 .50	\$0,23 ;24 ;26 ;27 ;30 ;65 ;65 ;65

Rivets made from smaller wire than No. 14, all lengths, 70 cents per pound.
Tinning, 6 cents per pound extra.
Extras,—Shoulder Rivets and Pointed Rivets, add 2 cents per pound to list.
Not Extras,—Goods packed in 25-pound hoxes, 15 cents per 100 pounds. In packages of 10 pounds and smaller, 25 cents per 100 pounds.

Oval or countersunk heads, or extra lengths, 5 cents per 1000 in addition to the above prices.

Coapers' Rivets. Black and Tinned Iron Rivets in Bulk. Price per pound. Black. \$0.45 .40 Price per pound. 3d .15⅓≨ .151/2 \$0.161/2 11/4 11/4 11/4 21/4 31/4 5 6 7 8 9 10 112 14 16 Trunk Rivets-Tinned Iron. . 6 ..... .. .. Price per pound. .20 .20 .19 ... ...... Size.  $^{7/_{18}}_{.25}$ 5/16 .27 .26 .27 \$0.24 ..... Hame Rivets. . . . . . . . . . . . Price per pound. Barrel Rivets 1/2 inch and longer... \$0.16 .16 .16 .16 .17 Tinned Belt Rivets and Burrs. 16 16 1514 1514 Price per pound. Any length. .151%

### Block and Carriage Rivets.

### In papers of 100 each. Price per paper.

							Let	igth.					_		
Size.	1/2	ā <sub>R</sub>	3,1	38	1	11/8	134	11/2	134	2	214	21/2	3	31/4	4
3	\$0.21 .21	\$0.25 ,25	\$0.29 .29	\$0,32 .32	\$0.35 .35	<b>\$</b> 0.39	\$0.43	\$0.50 .50	\$0.57 .57	\$0.64 .64	\$0.70 .70		\$0.89 .89		
5	.19 .16		.25	.28 .2.	.81 .25 .21	.34 .27 .22	.38 .30 .24	.44 .35	.50 .39 .33	.£6 .45 .37	.63 .50 .42	.69		.90 .74 .64	1 0 .8 .7
8	.12	.14	.15	.17	.19	.20 .17	.19	.25 .21	.28	.32	.86 .80		.46 .37	.63	. 4

Black	and	Tinned	Iron	Rivets.

In	paper	s of 1000 each.	Price pe	r paper.
			Black.	Tinned.
8	ounc	e	\$0.20	₹0.2 <del>4</del>
10	1.1	**** ****	(2)	.25
12	6.6		24	.28
14	4.6		. 26	.30
î	pour	d		.33
11/	P-041			.37
112	4.6		no	.42
18%	1.6		0.44	.48
$\frac{1\frac{1}{4}}{1\frac{1}{2}}$ $\frac{18}{4}$	6.6		413	.54
21/	6.6			.69
21/3 3	6.6		20	.78
31/	1.4		-	.81
31/4 4 5	4.6		76	1.00
5	4.6		00	1.20
6	64		4 (10)	1.44
7	14		. 00	1.68
é	66		4 44	1.92
7 8 9	6.6		4 50	2.07
10	16		. ~-	2.35
12	66		• 00	2.70
14	44		0.01	3.15
1.3	- 11		0.01	2 60

Any of the above sizes, Tinned and not specified, 6 cents per pound advance on above prices.

Black and Tinned Swedes Iron Burrs,

### Price per pound.

Black.	Tinned.
84\$0.23	\$0.29
11/32	.29
5/16	.29
1	20
2	.29
3	.29
14	.29
4	.80
5	.31
6	.34
	.34
/ 16	
7	.36
833	.39
9	.40
10	.41
11	.42
12	.48
13	.48
14	.51

Parker Heater. - The Parker Portable Heater manufactured by the Charles Parker Company, Meriden, Charles Parker Company, Meriden, Conn., and 97 Chambers street, New York, an Illustrated description of which appeared In our last issue, is sold at a discount of 50 and 10 per cent. from the following list:

 No.
 3. Nickel Finish
 \$12,50

 4. Polished Nickel Plated
 17,70

 5.
 21 00

Christmas Tree Holder -The Berlin Christmas Tree Holder described in our last issue and put on the market by the Logan & Strobridge Iron Company, New Brighton, Pa., is sold to the trade at \$4 25 per dezen, net.

Bernard Folding Dividers. - The Bernard Dividers, illustrated in our last issue, are sold to the trade at \$11.50 per dozen, subject to a discount of 35 per cent. The Dividers are manufactured by the William Schollhorn Company of New Haven, Conn., for whom Julius Berbecker & Co., 280 Broadway, New York, are agents.

Woodlite Ware -The Bronson Supply Company, 72 Beekman street, New York, as agents for F. W. Morse, Providence, R. I., have just commenced to introduce a new enameled ware called Woodite, a description of which appeared in our issue, when an illustration of a Wash Basin was given, this being the only goods in this line which the company are at present prepared to supply. These Basins are sold to the trade at \$50 per gross, subject to a discount of 50 and 10 per cent.

Files.-The File market is in a condition very far from satisfactory, there being very active competition among some of the leading makers, and as a result prices are low and uneven.

Old Metals.-The market is dull, and prices, while rather firmer, are somewhat uneven. The following quotations represent about the prices now paid by dealers, New York delivery:

Heavy Copper
Light and Tinned Copper 10 15 614
Light and Imned Copper
Heavy Brass 18 10 484
Light Brass 2 10 334 ¢
Lead 39 % 98/d
Lead 16 2%
Tea Lead 10 10 2140
Zinc # 15 2 4
NT. 1 Th 10 Pt. 11 A
No.1 Pewter # 10 11 \$
No. 2 Pewter 15 5 \$
Wronght Scrap Iron. # gross
ton \$7.50 @ \$8.00
ton \$1.50 @ \$5.00
Heavy Cast Scrap # gross
ton
Otove I late Scrap # Bross for
Burnt Iron p gross ton 3.00

Old Rags, Paper, &c.-The ruling prices paid by New York dealers are as follows:

No. 1 White Rags* No. 2 White Rags* Mixed Rags* Blues and 3ds* Hard Sized White Shavings No. 1 White Book Snavings No. 1 White Book Snavings No. 1 White Book Snavings No. 2 White Book Snavings No. 2 White Book Snavings No. 3 White Shavings No. 3 White Snavings	BBBBB	21/4 15/4	8 888	31/4 2 11/4 21/4 21/4 11/8	* * * * *
No.2 White Book Shavings H Light Book Shavings	Ip.	1	(G)	660	
No. 1 Mixed Shavings 19	Ŀ		0		
No. 2 Mixed Shavings	Ï.		(4)		
No. 1 Printed Books	Ip	1	(4)	11/4	
Ordinary Mixed Books	Þ	78	(4)	2-56	ŕ
Newspapers	P	8/	m	1	
No. 1 Manila Paper			4	8/4	
No. 2 Manila Paper	D.	78	0	369	
Bogus Paper	Þ			1/1	
Common Paper	Þ			/ *	
Straw Chips	Þ			%9	
Binders' Clippings₩				369	
Jute Butts	D		_	1%	ŗ
No. 1 Jute Bagging₩	$\mathbf{p}$	1		11/4	
Mixed Bagging	Ъ	3/4	0		
No. 2 Bagging	$\mathbf{p}$		(4)		
Hemp Twine	b	18%	0	2	Ė
Manila Rope	D	2	0	2169	t
Jute Rope	10	114	a	184	t
Mixed Rope	D	82	ä	369	t
minor responsible to the second		/4	-	, 0	

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, * b Rnbber Shoes, carloads, de-	0	\$0.031/4
livered at factory, & b	0	.04%
Ioads, % ib Large Hose, № ton	0	15 00
White Wringer Rolls, \$ 15 White Syringes, \$ 15	an	.03%

### Trade Notes.

A NEW INDUSTRY is to be established in Columbus, Ohio, articles or incorporation having been filed by the Aluminum Letter & Sign Company to do business in that city. The capital stock is \$15,000, and the object is to manufacture Aluminum Letters, Figures and Signs and Castings of all kinds in which Aluminum forms an ingredient. The incorporators are James A. Irving, George W. Ochs, Charles M. King, A. P. Rusk and De Witt C. Jones.

EPPELSHEIMER & Co., 160-166 Bleecker street, New York, note a revival in their trade over last year. Bakers and confectioners are buying Cake Molds and Tinware and Molds for ices and confections. One of their newest Molds turns out a perfect "brownie" and is very popular, the fad being for "brownies" in everything just now.

E. T. BARNUM of Detroit, Mich., has issued his new fall supplement to his general catalogue; also a supplement devoted to Builders' Iron Work, and another supplement to his Fence catalogue, besides several minor ones. These catalogues have been sent to the trade in a number of foreign countries, as well as throughout the United States, and will, no doubt, be much appreciated.

H. A. & L. F. STEVENS, 529 West street, New York, are busy with holiday work in brass goods. They make a specialty of Piano and Banquet Lamp Work, and are preparing some elegant settings for lamps made of the celebrated American Rookwood Ware sent to them by a Chicago house.

W. J. Gordon, 218 New street, Philadelphia, reports a good demand for his new Automatic Power Seaming machine. Among recent shipments have been some to Milwaukee, Boston, New York, Brooklyn, Baltimore and Portland, Ore. He has just received an order for one from a firm in Newcastle, New South Wales, and will make shipment at the first opportunity via London or other European port.

H. C. BARRINGER and others of Baltimore, Md., have obtained a charter of incorporation for the Maryland Safety Light, Heat & Power Company, to manufacture appliances for lighting and heating buildings in Baltimore.

• In The Metal Worker of October 27 we stated that the Chapman Tin Mig. Company had removed to Newark, N. Y., from Clifton Springs. This statement, was an error. We learn from C. A. Chapman that for some time he has contemplated the possibility of leaving Clifton Springs, and has been receiving offers from different localities. He has not, however, made up his mind to move or decided upon any new place for his factory. He is open to offers and is still considering the whole question.

THE CAROLINA MICA COMPANY, Spruce Pine, N. C., invite attention to their regular standard Blue Ridge Mica, by means of circulars which they are distributing to the trade. They also call attention to the line of superior specked and spotted mica and to their line of Kaolin, Paper Clay, Tale and Bauxite. Price-lists of Mica which they are in a position to supply are included among the circulars which are being sent out.

THE SAYRE STAMPING COMPANY, Sayre, Pa., distribute circulars relating to the Uncle Sam dampers of their manufacture. These are made of malleable fron, the stem being pointed so that it may be driven through the pipe, and the damper plate being made of cold rolled steel, corrugated to prevent warping. The makers call particular attention to the lightness and strength of these dampers, and their desirability for heater pipes. The circular gives the list price of the various sizes, which run from 5 to 10 inches.

### News and Notes.

The Monde Economique, after careful investigation, estimates the world'a coffee production for the current year at 12,000,000 bags. As against this output, larger than that of any previous year, there is a consumption of only 10,500,000 bags.

It is calculated that the operators of the Schuylkill Valley, Pa., coal region will put out at least 1,250,000 tons of anthracite coal during the month of November. Of this amount, about 1,000,000 tons will be marketed by the Philadelphia & Reading Coal & Iron Company.

The coinage executed at United States mints during the month of October aggregated 4,044,360 pieces, of the value of \$4,152,700; of which 264,360 pieces were gold, of the value of \$2,911,800; 2,150.000 silver pieces, of the value of \$1,217,000; and 1,630,000 pieces of minor coin, of the value of \$23,000. Of the silver coined, \$600,000 were atandard ailver dollars.

Ignatius Donnelly figures out from the last census returns that in 1890, 9 per cent. of the population of the United States owned 71 per cent. of all its wealth. One-fifth of 1 per cent. of the people of this country owned \$12,000,000,000 of property, or about one-fifth of the whole property of the nation.

A new industry has been started in the San Joaquin Valley of California by Chicago tannera—namely, the cultivation of canaigre, a weed of the dock species containing a large amount of tannic acid. A large tract of land has been purchased on which the weed will be planted, and extensive works for preparing the acid will be built, at a cost of \$300,000. It is said that with the acid from this plant leather can be tanned better than by any other means.

The Canadian Lumberman calls for measures to preserve the forests of the Dominion from the unnecessary destruction and waste that is now going on in them as well as for a system of replanting in places where trees have been cut down for lumber.

The Railroad Gazette gives a list of accidents occurring on the railroads of the United States in September, which shows that there were 146 accidents, in which 50 persons were killed and 126 injured. Of those killed 30 were railroad employees, 5 were passengers and 15 trespassers. Of those injured 84 were employees, 32 passengers and 10 trespassers.

### CONTENTS

Editorials:	OE.
Examination of Plumbers in England	
Steam Pipe Covering	
The Galvanized Iron Trade	
The Moral Effect of a Technical Educs-	
tion	39
The Letter Box-	
Sheet Metal Launch, Illustrated	40
	40
Capacity of Fluring Vessels	40
An Unsatisfactory Furnace	41
Strength of Pipes	41
Water Front Hinders Baking	41
Circumference of a Stove Collar	42
Some Kitchen Boiler Questions	42
A Cracked Bell	42
An Improperly Shaped Flue	42
Norton Brothers' New Factory	42
•	7~
Roofing and Cornice—	
Bischoff's New Rooting. Hlustrated	43
Flashings	43
Steam and Hot Water-	
Crude Gas for Steam Generating Pur-	
A Novel Het Bleet Heating Bleet, III	44
A Novel Hot Blast Heating Plaut. Ill.	44
An Old Steam Fitter.	45
The New Large Royal Heater. Illus	45
Heating Notes.	46
Canadian Mica Mines	46
New Publications	46
Plumbing and Gas Fitting-	
Philadelphia Master Plumbers' As-	
sociation	47
Columbia Ship Closet. Illustrated	47
A Frost Proof Valve. Illustrated	47
Water Without Pumping. Illustrated.	48
Kitchen Boiler Connections	48
School Closets	48
Traps and Vents	48
The Novelty Ball Cock. Illustrated	49
Sanitary Plumbing	49
Excetsior Incased Burring Machine. Ill.	50
Spring Vise Jaws for Tubing. Illus	50
Storage Battery Locomotive	50
Heating and Plumbing-New Work and	•••
Contracts	51
Serap	52
Some Reminiscences	
	53
Fire King Oil Heater. Illustrated The Retail Store—	53
Your Partner's Son	54
The Champion Roaster. Illustrated	54
Riding Horse Trieycle. Illustrated	55
Western Autograph Register. Illus	55
New Idea Oil and Gasoline Can. Illus.	55
Memoranda	55
stove Trade Notes—	
Southwestern Stove Manufacturers	56
The Western Stove Trade	56
The Bracker's Art	56
The Abram Cox Stove Company	57
Odd Plates	57
Trade Report—	
The Iron Market	59
Metal Market	59
Chicago Report	60
Condition of the Hardware Trade	60
Notes on Prices	60
Trade Notes.	62
The Week.	62
Motal and Miscellaneous Prices	63
abor Exchange—	00
	ar.
Help Wanted	65 85

## Metal and Miscellaneous Prices.

### CHICAGO, NOVEMBER 8, 1894.

Tin-	Irondale, 2
<b>Straits</b> pigs 17¢	IC, full w IX, full v
Imported Tin Plates-	Irondale A
Charcoal Plates.—Bright.	IC, full v
Guaranteed Plates command special	
prices, according to quality. Per box.	Irondale A IC, full v
Per box.  [IC, 10 x 14	Irondale 1
IC, 14 x 20 5.75 IC, 20 x 28 11.50	IC, 100 ll IC, full v
Calland and IX, 10 x 14 7.50	1
Calland and IX, 10 x 14	Irondale (
1X, 20 x 28 15.00 DC, 1214 x 17 6 5.50	Each ex
Calland and JIX, 10 x 14 4 7.50  EclynGrade 1X, 12 x 12 4 7.50  IX, 14 x 20 4 7.50  IX, 20 x 28 4 15.00  DC, 12\(\frac{1}{2}\) x 17 6 5.00  DX, 12\(\frac{1}{2}\) x 17 6 5.50  [IC, 10 x 14 6 5.50	C
Allaway Grade, 10, 12 x 12,	R. W. & I
	Old Hund R. W. & I
(ix, 20 x 28 11.00	Old Hund
Cohe Plates—Bright.	Palm IC
Per box. Per box. @\$5.00	Palm, 1C, Palm, 1X, Empire, 1
IC, 14x20.90 h 6 4.50	Empire, l Hickory,
Ptoti Coke—IC, 10x14.14x20	
	Alaska (h Alaska 12
	Special, I
Charcoal Plates.—Terne.	Niagarn, l
Guaranteed Plates command special prices, according to quality.  Eansel and Dean Grades.—	Westmore
	IC, 14 x IC, 20 x
20 x 28 10,00 IX. 20 x 28 2 12,50	Kenwood
Worcester Brand and equal.	1C, 20 x
IC, 20 x 28 @ 10.50 IX, 14 x 20 @ 6.50	Furmstor IC, 20 x
20 x 28 @13.00	Irondale Irondale
Tin Botler Plates.	Irondale Each ex
Per box of Per box of 100 sheets. 112 sheets.	Challenge
X, 14 x 28\$11.75 \$11.25 XX 14 x 28\$13.00 13.75 X, 14 x 31\$13.00 12.50	Juno:
X, 14 x 31 13.00 12.50 xX, 14 x 31 15.00 Per box of	1C, 14 x 1C, 20 x
15.00 Per box of 56 sheets.	Illinois, O
X, 14 x 56 \$	IC, 20 x
X, 14 x 56 \$20.50 XX, 14 x 56 \$20.50 X, 14 x 60	E. L.:
xx, 14 x 60 82.25	IC, 20 x Jessie:
American Tin Plates.	IC, 20 x
Charvini Plates.—Bright.	Old Proce
Minerva:	IC, 14 x IX, 14 x
1C, 10 x 14, 12 x 12, 14 x 20\$5.87½ 1X, 10 x 14, 12 x 12, 14 x 20.6.62½	IX, 14 x IC, 20 x IX, 20 x
Florence.— 10, 10 x 14, 12 x 12, 14 x 20, \$5.75	B B L
IC, $10 \times 14$ , $12 \times 12$ , $14 \times 20$ . \$5.75 (X, $10 \times 14$ , $12 \times 12$ , $14 \times 20$ . 7.50	IC, 14 x IX, 14 x
Phlma.—	IX, 14 x 1C, 20 x IX, 20 x
IC, 10 x 14, 12 x 12, 14 x 20 6.25 [X, 10 x 14, 12 x 12. 14 x 20 8.96] Usual extra for other crosses and 20 x 28	6
usual extra for other crosses and 20 x 28 audie these prices.	Merchan

CHICAGO, NOVE	- 1
Irondale, AAA, tissue paper packed:	I
IC, full weight, 14 x 20	
Irondale A A :  1C, full weight, 14 x 20	];
1rondale A : 1C, full weight, 14 x 20 5.00	
Irondale B:	
IC, 100 lbs., 14 x 20 1.75 IC, full weight, 14 x 20 1.85	1
Irondale C, IC, 14 x 20, 100 lbs 4.50   IC, 14 x 20, full weight 4.75   Each extra cross 75¢.	
Coke Plates.—Bright.	
R. W. & B., 1C, 14 x 20, 108 lbs\$5.60 Old Hundred, IC, 14 x 20, 100 lbs4.75 R. W. & B., IC, 20 x 28, 216 lbs10 00 Old Hundred, IC, 20 x 28, 200 lbs9.50	
Doodna Blatse	- 1
Palm, IC, 20 x 28.	5
Alaska (heavily coated), IC, 20 x 286 13, 54 Alaska 1X, 20 x 28. @ 16, 7 Special, IC, 20 x 28. @ 13, 55 IX, 20 x 28. @ 13, 5	)
Westmorciand.	- 1
1C, 14 x 20. 5.25 IC, 20 x 28. 10.56 Kenwood:	
IC, 20 x 28 10.5	
Furmston: 1C, 20 x 28	0
IC, 20 x 28   10.0	5 / 2
Challenge, 1C, 20 x 28	0
1C, 14 x 20	
Illinois, Old Method :	
IC, 20 x 28 13.5	0
IC, 20 x 28	0
IC, 20 x 28 10.5	0
Old Process :   IC, 14 x 20	0
IX, 14 x 20. 10.0 IC, 20 x 28. \$17.0 IX, 20 x 28. 20.0	0
H. B. L., Old Style: IC, 14 x 20	10
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	5
Continuous Roofing Tin.	0
Merchant's Tandemper roll, 2.7	5

١	Sheet Iron-	F
1	Black.	î
	Common American Refined.  Nos. 10 to 16.	1
	Russia, Planished, &c.	
	Gennine Russia, ali numbers18¢ net. Patent Planished¥ n A, 10¼¢; B, v¼¢ dis. 5\$	
	Craig's Polished Sheet Steel834#	1
	Galvanized.	ľ
	Juniata or first qualitydis.75%105	ľ
1	Copper-	'
	Lake	
1	Sheet and Bolt.	'
	Discount on old list (except advance on cold rolled polished boller sizes to 25¢), 25%.	
5	Copper Bottoms.	
1	Discount on old list, 25%. Seamless Brass and Copper Tubes.	l
	Base price, 1746, Chicago, with extras	l
i	Base price, 174%, Chicago, with extras according to size.  Copper, Bronze and Gilding Tube, 3%	ı
3	m additional.	
	Brazed Brass Tubing. (100 fb lots.)	
	(To No. 19 inclusive.) Discount, 40%.	l
	Plain, 3( inch up to 2 inch\$0.35	
0	Plain, 36 inch up to 36 inch	
۱, ٥	Plain, 5-16 inch up to % inch	
5 !	Plain, 4 Inch up to 5 16 inch 1.00 Plain, 8-16 inch up to 4 inch 1.00	
) ]	Plain, % inch up to 3-16 inch 1.50	١
,	Plain, 3 inch and largerSpecial.	١
	Discount, 40%.  Plain, 4 inch up to 2 luch \$0.25  Plain, 5c, inch up to 5c, inch 36  Plain, 5c, inch up to 5c, inch 38  Plain, 5c, inch up to 5c, inch 38  Plain, 5c, inch up to 5c, inch 41  Plain, 5c, inch up to 5c, inch 48  Plain, 4 luch up to 5c, inch 48  Plain, 5c, inch up to 5c, inch 48  Plain, 5c, inch up to 3c, inch 48  Plain, 3c, inch up to 3c, inch 38  Plain, 3c, inch up to 3c, inch 38  Plain, 3c, inch up to 3c, inch 38  Plain, 5c, inch up to 3c, inch 38	l
	Roll and Sheet Brass. (100 D lots.) Discount, 40%.	١
0	Slab Spelter-	ĺ
0	Western Spelter4¢	ł
U	Sheet Zinc-	İ
0	800 b casks. \$1.75 300 b casks. 4.95 Loose sheets. 5.05	١
0	Solder-	۱
0 0 0	111	Į
0 5	The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.	
0	Antimony -	J
5	Cookson	

Roft Pig Lead.   Side
14 and under, Plain. 5744 14 and under, Gaiv. 504 15 and over, Plain. 574 15 and over, Plain. 574 15 and over, Gaiv. 574 16 and over, Gaiv. 574 16 and over, Gaiv. 574 16 and over, Gaiv. 574 18 and over, Gaiv. 574 19 and over, Gai
Cold Drawn Scamless Steel Tubing 505
Cast-fron Soil-Pipe, Tarred isses 2 to 0 Inches, inclusive
Leader Pipes— Abendroth's Gatv. Spiral Riveted. 604 Austh's Corrugated 655 Gordon & Gilbert's Corrugated. 656 Ritchle's Gaiv. Iron only. Cor'd. 658 Ritchle's Spiral Lock Seam, Galv'd. 604 Austh's Spiral Ribbed Pipe. 655 James A. Miller Bros. (Gaiv'd Irot only) Corrugated. 656
Elbows - Adjustable
Furnace Fittings- Discount from Excelsion Steel Parnace Co.'s list
Steel Roofing— Perfection\$3,10 square Climax\$2,10 square The Lloyd Spanish Tiling\$1,50 square
The Linyd Spanish Tiling\$1.50 square
Metallic Shingles— Cushman's \$0.00 square Merchant & Co.'s Spaulsh Tilos Conper, 14 ps
Metallic Shingles—Cushmaris
Metallic Shingles SU,00 square Merehant & Co.'s Spanish Tilos Copper, 14 os. 80.70 \$19.00 square Tin \$0.770 \$11.25 square Steel, painted \$9.00 square Drain Pipe-Ttle. Discount from het 70s
Metalic Shingles— Cushman's
Metallic Shingles— Merchant's
Metallic Shingles— Merchant's
Metallic Shingles— Cushman's
Metallic Shingles— Cushman's
Metallic Shingles— Merchant's

Lead-

### NEW YORK, NOVEMBER 9, 1894.

The following quotations are for small lots.

Aiuminum-
No. 1 Ainminum (guaranteed over 98%
pure), in rolling ingots
8mall lots 1036
100-m luts n.
Ton lota D, 58¢
Wn 1 Aluminum (guaranteed to be over
985 pure), in ingots for remelting :
Small lots. \$ D, 60¢ 100-b lots. \$ D, 55¢
Ton lote
Ton lots
pure Alnminum), cast in ingots for re-
melting:
8mail lots % m. 55¢
100-m luts ₩ m, 58¢
Ton lots D, 50¢
Antimony— Cookson
Hallett's 9 D. 956¢
Brass-
Planishednet
Roll and Shest25@30%
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
List April 9, 1894.
Min. up to Min
62-in. up to %-in
1/- to no to 3/- in
%-ln.up to ½-ln
D-10-10-11D 10 % 10
8-16-in.up to 4-in
Smaller than 14-inSpecial
8 to and larger Special
3 in. and larger
Copper and Bronze Tubing
of w in the fuel press.

Conductors-
Corrugated. Round or Square-
Galvanized
Galvanised, Locked Joints60\$
Tin60%
Spiral Riveted-
See also Elbows and Shoes; Eave- Trough Miters; Strainers, Con-
ductor.
Strainers, Conductor,
_ '
Copper-
Bottoms, Pits and Flats 19# # D, net Ingot.
Lake1014#
Ansonia Grade Arisona10 #
Ansonia Grade Casting934
Planishednet   Sheet and Bolt15¢ \( \mathbb{m} \), net, basis
Tubes - See Seamless Brass
Tubes.
Eave Troughs-
Lap or Slip Joint, Galvanised60&10% Lap or Slip Joint Terne60%
Eave-Trough Mitres-
Lap or Slip Jointlist, net
Elbows- Plain Adjustable-
Tin705
Galvanised70%
Crimped Tubing-
Re-Tinned or Galvanised851
Buffalo Four-Piece.
450 5 516 8 7 inch. No. 1. \$0.70 .77 .82 .87 1.05 per doz.
No. 261 .66 .71 .74 "
•

Elbows and Shoes-	Tin Lined Pipe
Tim Bust Of \$110p	Sheet
Tin	Old Extend In Care and of the
Corrugated.	Metal, Expanded-
Flat Crimp.	Manufacturers' list No. 5.
Galvanized60%	Lathing10%
Tin60%	Netting, Painted Sbeets205
Galvanized607	Door Mats, Galvanized
	Tree Guards, Paneled
Iron, Sheet-	
Black.	Mitres, Eave-Trough-800
Common R. G. Cleaned	Eave-Trough Mitres.
American. American. Nos. 10 to 16 b b 2.25 2.606	Edve-170ayis missics.
Nos. 17 to 91 W 7 2.35 2.70#	Paints, Oils &c
Nos 22 to 24 & b. 2.15 2.80#	
Nos. 25 and 28. W D. 2.55 2.109	Lead, Amn. White, in oil 6% 6 7% Lead, Red, bbis. and % bbis 6% 6 7%
No. 97 h 7 2 (15 8,000)	Lead, Red, kegs
No. 28 % 70. 2.75 3.100	Ocher, American 1 @ 1%
American B. D B, 400414	Red Tel tlan, American 1% @ 2%
Russia, Planished, &c.	umaged Office
Genuine Russia, accord-	Raw, # gal
ing to assortment	
Craig Polished Sheet Steel * D 854	
Cities to thanked private processing	In bbla
Galvanised.	Putty:
В. В.	In barrels and 14 bbis
Nos. 10 to 16	In tubs
Nos. 17 to 21	In tin cans
Nos. 17 to 21	In bladders
Man 95 to 98	Boofing Material, &c.:
No. 28.	Asphaltum, Trinidad Refined,
No. 28	ton. \$30,00@\$35.00 Asphaltum, Rock, \$ ton. \$14.00
No. 29	Cool Tar Folt 1 Ply 2 h 24
No. 80	Coal Tar Felt, 1 Ply, * B 26 Coal Tar Felt, 2 Ply, * roll 108 sq. ft.
Lead-	11.42%
American Pig	Coal Tar Felt, 3 Ply, # roll 108 sq. ft.
Bar 444¢ Pipe. 54¢ 205	\$1.80
Pipe 54# 20%	Roofing Pitch & bbl \$2.20

Tin Lined Pipe
Metal, Expanded—
Manufacturers' list No. 8.         10a           Lathing         10a           Fenering, Painted Sheets         205           Netting, Painted Sheets         205           Door Mats, Guivanized         255           Window Guards, Paneled         185           Tree Guards, Paneled         185
Mitres, Eave-Trough-800  Eave-Trough Mitres.
Paints, Oils &c
Lead, Amn. White, In oil
spirits Turpentine:
Putty: In barrels and 1/2 bbis
Boofing Material, &c.: Asphaltum, Trinidad' Refined, \$\vec{\pi}\$ ton\$30.00@\$35.00 Asphaltum, Rock, \$\vec{\pi}\$ ton\$14.00 Qoal Tar Felt, I Ply, \$\vec{\pi}\$ b\$14.00

01	
Pipe, Drain Pipe and Fittings, Cast	6
iron Soil-	
"Standard "Pipe, 2 to 0 lines65&10¢ Pittings, Pipe, 2 to 0 lines65&10x10¢ Extra lieavy Pipe, "65x10x10¢ Fittings, Rieny Pipe, "65x10x10¢ Larke sizes of both kinds65x10¢ Fittings for both kinds65x10¢	8
Large sizes of both kinds65&105	
PIDA SOIFAL	A
Pipe, Spiral— Salvanized Tin	A
Salvantied	A
slag Wool, ordinary4	A
Bock Wool, ordinary 24 Bock Wool, extra74	
Rosin— Ocumon and Good—Strained Ocumon and Good—Strained Rosin, C. & D. * bbl. \$1,83@\$1.36 Rosin, E. & F. * bbl. \$1,95@\$1.80 Rosin, E. & F. * bbl. \$1,95@\$2.10 Rosin, I. & K. * bbl. \$2,95@\$2.50 Rosin, I. & K. * bbl. \$2,75@\$4.00 Rosin, I. & Ros	B
Bosin, E. & F # bbi. \$1.85@\$1.80	P
Resin, G. & H & bbl. \$1,95,052,10 Rosin, I. & K & bbl. \$2,80@\$2.50	1 C
Bosin, M. & N	1 c
Shoes and Elbows-See El-	000000
Slate Roofing	ř
According to size, f.o.b. cars, Quarry	
Fennsylvania:  Best Bangor, \$3,25@\$4.50  Pen Argyr, \$ sqr. \$3,70@ 4.00  Peach Bottom, \$ sqr. 4.75@ 5.00  Ro. 1 Chapman, \$ sqr. 9.00@ 4.25  Lehigh Blates, \$ sqr. \$2.00@ 4.50	F
Pen Argyle, # sqr 3.70@ 4.00 4.75@ 5.60	l li
No. 1 Chapman, # sqr 8.90@ 4.25 8.00@ 4.50	I I
Vermont: 2 500a 2.75	1
Vermont:  8ca Green, # sqr	i
Bed, F sqr. 9.75@12.00	
Fluids—	10
Solder— 111/6@124	i
No. 1. 013@104  Prices of solder indicated by private prices of solder indicated by private	ŀ
rands vary according to composite	1
Concentrated Soldering Flux.	1
Goncentrated Soldering Flux.  I.o.b. New York.  In barrels, F. D	
Gedney's Soldering Fluid.	- 1
in carboys or barrels, # D	i li
Perfection Soldering Flux.	
Bbls., about 500 b, * b346	
Kegs, about 110 h, # h	
11.50 for carboy or barrel; money refunded when returned.  Perfection Soldering Flux.  No charge for package.  Bbis., about 500 b. \$ b	1
Large quantities, per D	ا:
Omalton441	
Stone Pine	- 1
Stove, Stove, Stove,	, 1
	=

_		-
	Strainers Conductor—	1
	Tin. Pigs and Bars-	
	Banca, pigs. # b	
	Straits in bars, # D	
	Tin Plates- American Terne Plates- Alaska (re-equared) IC, 14 x 20. 81 50 Alderly, extra quality, IC, 14 x 20. 6.12\footnote{1.00} Allegheny, IC, 14 x 20. 5.75 Anchor IC, 14 x 20. 5.76 Apolo Rooting, IC, 14 x 20. 5.50 Atlantic, IC, 14 x 20. 6.50 Atlantic, IC, 14 x 20. 6.50 Atlantic, IC, 14 x 20. 6.55 Black Diamond (Extra Coated),	
	American Terne Plates - 10 to	
	Alderly, extra quality, IC, 14 x 205.6216	
į	Allegheny, 1C, 14 x 20	l
1	Anchor IC, 14 x 20	l
ı	Applied Roomak, 1X, 14 x 20, 6.50	
١	Black Diamond (Extra Conted),	l
١	1C, 14 x 20 Payre (Extra Control) 1C, 20 x 28, 11,50	l
١	1C, 14 X 20 Bonus (Extra Coated), 1C, 20 X 28, 11, 50 1X, 20 X 28, 14, 50	l
'	Boston, IC, 14 x 20	1
(	Capitol, IC, 14 x 20	l
ĺ	Climax, IC, 14 x 20 4.50	l
1	Columbia, IC, 14 x 20 4.75	l
i	Cort's Om Style, IC, 14 x 20	١
١	Dudiap 8 Founda St. 14 x 20 9.50	
١	Duulap's Double Dipped, 1C, 14 x 20 9, 5, 23   "Domestic, IC, 20 x 28 12,00   "IX, 14 x 20 9, 50   Empire, 1C, 14 x 20 5, 12x6   Eureka, 1C, 20 x 28 10,00   Eureka 200 ibs., IC, 20 x 28 9, 70   Excelsior, IC, 14 x 20 4, 75   Filhert, IC, 14 x 20 4, 25   Flag, IC, 14 x 20 4, 25   Florida, IC, 14 x 20 6, 20   IC, 14 x 20 6, 20   IC, 14 x 20 7, 25   Golden Star 20 5, 50   Star 20 5, 50   Golden Star 20 5, 50   Star 20   S	l
ł	Empire, IC, 14 x 20 5.12% Funds 1C 20 x 28	ì
١	Eureka 200 lbs., IC, 20 x 28 9.70	١
i	Eureka 200 lbs., IC, 20 x 28. 9,70 Eureka 200 lbs., IC, 20 x 28. 9,70 Excelsior, IC, 14 x 20. 4,75 Filbert, IC, 14 x 20. 4,25 Florida, IC, 14 x 20. 4,25 Florida, IC, 14 x 20. 6,25	l
1	Flag. IC, 14 x 20	ł
	Flushing, IC, 14 x 20	l
	1C, 14 x 20	I
	1X, 14 x 20 7.70 Olobe, IC, 14 x 20 2.50	١
	Golden Star Old Style, IC, 20 x 2815,00 1C, 20 x 2818,00	1
	Grace, IC, 14 x 20,	Ì
	Hamilton's Best Redipped, 1C, 14x20 9.25	١
3	Hickory (Resquared), IC, 14 x 20 5.50	١
	Juno, 1C, 14 x 20. 6.75	
	IX, 14 x 20 8.00	
	Juno, IC, 14 x 20. 6.75  Kensington, IC, 14 x 20. 8.00  Knoxali, IC, 14 x 20. 4.75  Laufman's Apollo (Resquared), IC, 6.75	1
	14 x 20	۱ ا
•	Leominster, Extra Coated, IC, 14x20.6.375	,
	Lion (Stamped), IC, 14 x 20 5.75	į
	Lutu, IC, 20 x 28	)
9	Leon (Stamped) 1C, 14 x 20. 5.75 Lulu, 1C, 20 x 28 0. 0.56 " 1X, 20 x 28 13.50 Maple, 1C, 14 x 20 5.75 Mercbant's Roofing (Resquared). 7.56	í
•	IC, 14 x 20. 7,50 Meurer Roofing, IC, 14 x 20. 7,75	)
•	Meurer Roofing, IC, 14 x 20	
ė	Nava, IC, 29 x 28 10.50	)
ø	Merchant's Roofing (Resquared). IC, 14 x 20.  Meurer Roofing, IC, 14 x 20.  National, IC, 14 x 20.  New Castle Old Method.  New Castle Pulm, IC, 20x28, 18.00.  New Castle Pulm, IC, 20x28.  14.50	9
	New Castle Palm, 1C, 20x28	Ö
e	Osborn's Old Process, IC, 20 x 2814.00	0
٠	New Castle Palm, IC, 20x28. 11-56 Old Colony, IC, 14 x 20. 7-56 Osborn's Old Process, IC, 20 x 28. 11-0 IX, 20 x 28. 11-0 Osceola, Old Style, IC, 14 x 20. 7-2 Vector, IC, 14 x 20. 47.7	5
_	Pacific, IC, 14 x 20 4.70 Pennsyl Old Method (Treble	5
,	Pacific, IC, 14 x 20 Pennsyl Old Method (Treble Coated), IC, 14 x 20	5
	Course all sales a service street	

		D
1	Phillips' Roofing, 1C, 14 x 20	Pontymister Old Style Grade, IC, 14 x 20 5.50 20 x 28 11.25 1X, 14 x 20 6.50 20 x 28 18.00
Ł	Phoenix, IC, 14 x 20, 4.75	Style Grade, IC, 5 20 x 2811.25
П	Pullman, IC, 14 x 20 5.75	1X, 14 X 20 0.50
1	Roughlie, IC, 14 x 20 4.75	Worcester Grade, 1C, 14 x 20, 46,824 20 x 28, 9,26 IX, 14 x 20, 57 5 20 x 28, 11,50 Dean Grade, -IC, 14 x 20, 4,50 1X, 14 x 20, 5,75 20 x 28, 11,50 1X, 14 x 20, 5,75 20 x 28, 11,50 Aberoarne Grade, -IC, 14 x 20, 4,25 20 x 28, 8,50 IX, 14 x 20, 5,50 20 x 28, 8,50 IX, 14 x 20, 5,50 IX, 14 x 20, 5,50
1	Section Water Conted (Resonared).	Worcester Grade, IC, 14 x 204.627
1	TO 14 - 90 8.00	20 x 28 9.25
1	10, 14 X 50 (Percenaved)	IX. 14 x 20 5 78
1	Beott's Extra Coated (Residuatory	20 x 28 11.50
ı	1X, 14 \(\tau 20\) 3.00	Deep Oredo IC 14 x 20 450
1	Standard IC, 14 x 20 4.13	Dean Grade.—10, 14 x 20
1	Star IC, 20 x 2811.00	20 A 20 0.00
. ]	Supertor IC, 14 x 20 4.50	1X, 14 X 20
1	Taylor's Old Method IC 14 x 50 0.50	20 x 2811.50
1	morter and State (Meaningred) IC	Aberoarne Grade, -IC, 14 x 20 4.25
П	7 60	20 x 28 8.50
1	_ 14 X 20	TX. 14 x 20 5.50
- 1	Taylor Rooming, IC, 14 X 201	90 7 98 11 00
1	The Osborn Rooting, IC, 29 x 2813.25	20 X 20.11111111111
ш	" 1X, 20 x 28,15.25 [	
Ш	Thomson's Puritan, 1C, 14 x 20 5.50	Imported Bright Plates—
	Tip Top. IC (Resquared), 14 x 20 1.88	Charcoal.
ш	1X 14 x 20, 6,13	Duty: 2.2# W
	Triumph Old Style IC, 14 x 20, 7,50	Molen and Col
ш	11111111111, Old Style, 10, 11 x 20, 11 0 00	Melyn and Cal-
1	TY C Mamanapole N. 14 w 90 8 10	land Grade. IC, 10 x 14 15.3716
1	U. B. monongauera, 10, 14 x 20 0.10	" 10, 12 x 18 5.02%
П	U. S. Redipped, 10, 14 X 20 8.25	land Grade. IC, 10 x 14\$5.37\(\) " IO, 12 x 125.62\(\) " " IC, 14 x 205.37\(\)
- 1	Venus, IC, 14 x 20 4.37%	" 1C, 20 x 28 10.75
П	Vigilant, IC, 14 x 20 5.00	" IX, 10 x 14 6.75
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	Willow, IC, 14 x 20 5.25	"   IX, 10 x 14 6.75
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1	Brooklyn, IC, 14 x 20 5.50	" 10, 14 x 20 4.8729
٠,	Century, IC, 14 x 20, 5,00	" 10, 20 x 28 9.75
١,	Climax, IC, 14 x 20 5,00	" 1X, 10 x 14 0.75
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5	Florida, IC, 14 x 20 5,75	" " DX, 12% X 17 5.50
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.75	Troughs.
.85	Trucks, Stove- Improved Lock Frame, per dos\$15.00
.50	Improved Lock Frame, per doz \$15.00
3.50	Steel Lock Frame, per doz 18.00

# Daisy Improved Pattern, # dos.... 18.00

### It Is Reported-

Alabama.
That H. J. Hallack, Tinware, Stoves, &c., GADSDEN, has gone out of busi-

That G. O. Warren has succeeded D. E. Crocker in the Stove, Tinware and Honse Furnishing Goods business

at New Decatur.
That Mayberry & Watson Company are a new Hardware concern at Bir-MINGHAM.

That P. Walsh has just entered the Stove and Tinware business at BIR-MINGHAM.

That R. A. Posey, Hardware merchant, of Dadeville, has completed his new brick building and taken possession of it.

That Eubank & Clark, Hardware merchants, Piedmont, are adding Stoves to their assortment of goods.
That a new Tinware store has been opened at Utah by Thomas Carring-

That John P. Streety & Co. have opened a new Hardware store at HA-NEYVILLE.

Arkansas.

That the Hardware business of P. C. White & Co., BATESVILLE, is now being conducted by P. C. White under his own name.

That Reeves & Miller, Hardware, Stoves, &c., Cord, have dissolved. Nicholls & Miller will continue the business.

That J. P. and F. W. Maguess of Newark have sold their Hardware and Stove stock to W. A. Edwards, who will continue the business at the

former stand.
That J. E. Stevenson has succeeded to the Hardware business of J. H. Pace & Co., Maiden Rock.

### Colorado.

That William Rogerson of FLORENCE has disposed of his Hardware stock and fixtures to R. K. Warhnrst of Pueblo, who will continue the business at the old stand.

That the Hardware store at COLFAX conducted by Mrs. Joseph Tobias was slightly damaged by fire on the 25th ult. Loss, \$250.

Connecticut.

That S. F. Cadwell and W. F. Jones, Hartford, heretofore carrying on the Hardware business under the style of R. D. Hawley & Co., on November 1 changed the firm name to Cadwell & Jones.

Illinois.

Guillemont, formerly traveling salesman for Hibbard, Spencer, Bartlett & Co. of CHICAGO, has purchased a stock of Hardware at EL Paso, where he will open a new

That David Stiver will open a new

store at STOCKTON.
That O. A. Harrison, Hardware and Implements, Lovington, has sold

Idaho.

That N. C. Larsen of BELLVUE has opened a new store at SILVER CITY.

Indians.

That Hatfield & are Read a new firm at Washington. They will embark in the Hardware and building material business about December 1. Mr. Hatfield was formerly a member of the firm of Hatfield & Palmer, who were succeeded by J. A. Palmer & Son. The new firm expect to open up a stock of about \$10,000

That P. M. Jenks has bought the Hardware and Implement stock for-

merly owned by W. C. Gerner, BAR-NUM. Mr. Jenks was formerly an em-

ployee of Mr. Gerner.
That Isaac Odell has disposed of his

Hardware business at GILMORE.
That C. E. Danforth & Co. of HAM-

That C. E. Daintin to Color that the Foster, Bailey & Goodrich Company of Grinnell have decided to add Hardware to the other lines

they are handling.
That C. H. Thomas & Bro., will succeed Thomas & Dongherty in the Hardware business, at Creston, about January 1, 1895, E. N. Dougherty hav-ing sold his interest in the concern to

G. M. Thomas.
That Smith & Sauders, Implement merchants, South English, have sold out to Cheney & Sanders.

Kansas.

That the Union Hardware Company of ARKANSAS CITY have been organized with a capital of \$5000. The directors are J. G. Finley, J. S. Short, R. J. Rankin, S. H. Hamilton and Robert Godson.

That D. C. Kennedy, Hardware dealer, Andover, has sold out.

Kentucky.

That the Hardware store of John T. Miller, at Lexington, has been sold to J. Frank Vanderen and J. Scott. Mr. Miller has conducted the store for the past 42 years with conspicuous success and has retired from active business. Mr. Vanderen, one of his successors, has for the past eight years been a traveling salesman in the employ of the Simmons Hardware Company of Sr. Laus. Mr. Scott is a well-known St. Louis. Mr. Scott is a well-known local business man.

That R. A. Callender has sold out his Hardware business at Glencoe.

## THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, November 17, 1894. Pure Water and Good Health.

DAVID WILLIAMS, PUSLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 Reade Street.
PHILADELPHIA220 South Fourth Street.
BOSTON146 Franklin Street.
PITTSBURGH Room 509 Hamilton Building.
CHICAGO59 Dearborn Street, cor. Randolph.
CINCINNATIRooms 22-24 Pickering Building.
8T. LOUISBank of Commerce Building.
CLEVELANDS12 The Cuyahoga.

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Index to Reading Matter ..... Page 62.

### Filtration of Drinking Water.

Some time since we noted in these columns the investigations being carried on with relation to the best means of economically purifying the water supply of communities. A recent paper entitled "Sand Filtration of Water, with Special Reference to Recent Results Obtained at Lawrence, Mass.," and presented before the American Public Health Association at its monthly meeting, records some very interesting and pertinent facts. It is practically an outline of the work being conducted by the Massachusetts State Board of Health, which has now been in progress for severel years and may be regarded as investigations upon nature's ways of working, with a view to their more economical and advantageous application to the problems in actual practice. For the past year the city of Lawrence has itself had in operation a large sand filter for the purification of its water supply. This is about 2.5 acres in area and contains sand of an average depth of about 4.5 feet. The filter is situated by the side of the Merrimac River and separated from it by an embankment. Its surface is 2 feet below low water in the river. The water is allowed to flow onto the filter about 16 hours per day. From beneath the filter it passes by under drains to a collecting conduit and thence to the pump. About 2,000,-000 gallons per acre pass through in 24 hours. Daily analyses of the water have been made to determine the bacteria present, both at the river before the water passes through the filter and also at the filter, the reservoir, the City Hall and the experiment station. The results show that the filter normally removed 98.3 per cent. of the bacteria from the water. The results obtained with other filters at the experimental station during an extended period are almost identical, being 98.54 per cent.

It is obvious that all this labor is heing expended with a definite purpose in view-that is, to ascertain to what extent the contamination of drinking water by disease germs can be practically prevented. How well the work has succeeded can best be shown by the results in the city of Lawrence. During the five years previous to the use of the filter the average annual death rate from typhoid fever in Lawrence was 1.27 per 1000 inhabitants. The population of Lawrence is 50,000, and this average rate is equivalent to 63 deaths per year. During the past year there have been 26 deaths from typhoid fever, a reduction of 60 per cent. Furthermore, it has been learned that of the 26 who died 12 were operatives in the mills, each of whom was known to have drunk unfiltered and polluted canal water, which is used in the factories at the sinks for washing. What these results mean may be still better comprehended by a knowledge of the fact that the sewage of Lowell enters this same river 9 miles above the Lawrence filter, and that during the past winter there was a severe epidemic of typhoid fever in the former city. It is thus found to be practicable to protect the consumers of infected water supply by means of sand filtration, a result that must stand as of the utmost importance in the sanitary condition of a city.

### Franklin Trade School Delayed.

The establishment of the Franklin Trade School in Boston hangs fire. Some doubt appears to exist as to whether the trustees of the fund left to the city of Boston by Benjamin Franklin a century ago for the benefit of the young mechanics of the city can be legally used to found a trade school. It will be remembered that this fund, which has grown during the interval of 100 years from the time of the testator's death, from \$1,000 to \$131,000, was voted by the trustees to be applied to this purpose. These trustees comprise, under the terms of Franklin's will, the pastors of three of the oldest Boston ehurches and the Selectinen of the city. The successors of the latter have been considered to be the Board of Aldermen, and as such they have served on the board of trustees. But the Selectmen were the executive of the town, while the Aldermen are the legislators; and the Mayor, being the executive, is by some considered the proper representative of the city on the board of trustees. The present Mayor of Boston appears to favor some other disposition of the money than the establishment of a trade

school. Hence the matter was referred for advice to the corporation counsel. and the scheme has been left in abeyance for the past year. The corporation counsel now gives it as his opinion that the trustees could not legally establish an endowment fund to carry on the school with the money that is left after erecting the necessary buildings and equipping them with machinery, &c. His advice, however, is not regarded as sound, and it is thought probable that a friendly suit will be brought to determine the exact status of the trustees and their powers and prerogatives. A strong feeling is said to exist in Boston in favor of the utilization of the Franklin Fund for the purposes of a trade school, as being an object more directly in line with the distinguished donor's well-known ideas than any other of the alternative schemes that were proposed. The usefulness of such a school to the city of Boston, and its benefit to the class Franklin desired to aid, is beyond question.

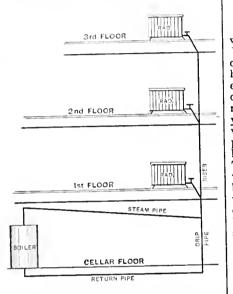
### Drawback Payments.

The Bureau of Statistics has just issued a statement prepared by the Commissioner of Customs which gives the amount of drawbacks of duties paid on exported articles manufactured from imported materials. It appears that the sums so paid were \$4,911,189.54 in the fiscal year 1891. \$3,410,736.88 in 1892, \$3,390,977.14 in 1893 and \$4,303,-976.05 in 1894. In the first year mentioned sugar drawbacks figured up to \$2.717,298.62. In 1892 these dropped to \$239,458.37 and have since become insignificant. This leaves us the really important item, that of tin plate, on which the drawback payments were \$1,418,496.15 in 1891, \$2,342,983.74 in 1892, \$2,650,792.55 in 1893 and \$3,523,-094.35 in 1894. These figures are interesting as showing how large a quantity of the tin plate imported into this country goes out again. Of course, the bulk of the material is used for making cans for the export oil trade, the Standard Oil Company being the chief beneficiary. The total imports of tin plate in the fiscal year 1893 were 628,425,902 pounds. Of this, 1,219,357 pounds was reexported, while 121,708,890 pounds was sent out under the drawback arrangement, thus leaving 505,497,655 for domestic consumption. In 1894 the imports fell off to 451,160,026 pounds; the re-exports dropped to 716,461 pounds, but the drawback exports rose to 161,757,907 pounds, so that the quantity taken by our markets of foreign plate declined to 291,585,658 pounds, a shrinkage of over 200,000,000 pounds in one year, due, of course, chiefly to the general depression of business.

# THE LETTER BOX.

## Dispute About Radiator Connections.

From W. W. K.—Please print the following inquiry in The Metal Worker, with the request that the practical steam fitters answer the question: I send herewith two diagrams, in both of which the boiler and radiators are placed in exactly the same position, the only difference being that in Fig. 1 the



Dispute About Radiator Connections.— Fig. 1.—Y-Connections to Radiators.

radiators are connected with the main riser by means of Y-joints and the return or drip pipe is carried down immediately below the water line at the boller. In Fig. 2 the radiators are con-

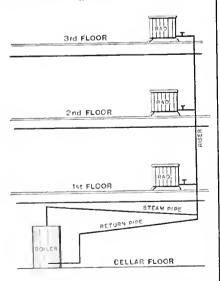


Fig. 2.-T-Connections to Radiators.

nected with the riser by means of T-joints and the return or drip pipe is carried overhead to within a few feet of the boiler and then dropped into it. The question is, which is the best method? No doubt either will work, but which will give the driest steam in the

radiators and the most freedom from water hammer? I should be glad to have answers from master steam fitters or practical workmen.

Note.—We present our correspondent's inquiry without comment, and trust that some of our readers who have had practical experience in such matters will favor him with an answer.

#### Concerning a Ram.

From Progress. - Why did "Fossil," who wrote about a ram in The Metal Worker of November 3, adopt such a crude back century idea as a "hinged board" (loaded or unloaded) in these elastic times? Tell him he can save his cussin' by using a common atationery rubber band placed around under the yoke and up over the stop pin in the valve stem of the ram. It will then palpitate readily and not dance around like a small boy with a burnt thumb. The trouble with the valve stopping, where the necessary connections have been properly made and the supply of water is sufficient, is that the rotating of the valve seats itself so that the water left between the surface of the valve and valve seat makes a union. Try two pieces of window glass or a piece of paper, wet and use as the boys make a sucker, and the effect will be apparent. "Fossil" reached the result desired, but not in the best way. An English writer has said that "of all the apparatus made by man the hydraulic ram is the most mulish and unexplainable." Is he correct? There are no effects without cause and natural laws are unvarying.

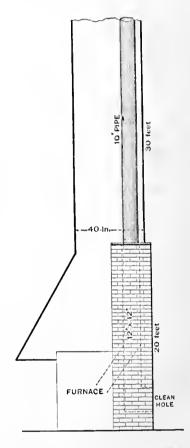
### A Plumber's Experience.

From G. F. S., Washington, D. C.-As a curiosity in plumbing I will tell you an experience that may serve others in trouble of the same kind. A person here complained for some time of a very noisy and rattling boiler in his kitchen and to my knowledge called in five different plumbers, but none could find the cause, as everything appeared cor-rect in the setting of the boiler. When my turn came I could see nothing wrong, but I reasoned that the boiler would only echo the noise from some-where else. The water back in the range being the only portion of the apparatus that was concealed I took it out, but found nothing in its appearance to excite suspicion. I did not like to give the problem up, however, so I took the water back to the shop to clean it and discover if anything was the matter. found the water back had been tapped on the top and had two brass boller spuds screwed in which I took out with considerable trouble. To my surprise I found a little tube from one of them, the plumber who had made the connection to the boiler having joined the hot water pipe to the spud where the tube was instead of to the other one, thus forming a trap. I changed the connections end for end and reconnected it and all went smoothly. The tube is of

no one ever thought of it. The best part of the story is to come. When I wanted my pay the house owner said that I had done nothing worth talking of, as I used no material and but little time, adding that plumbers are all robbers, &c.

### An improperly Shaped Flue.

From W. B. G, Philadelphia.—In The Metal Worker of November 10 you publish a letter from "C. H.," Ohio, who seeks a remedy for a badly constructed chimney. Perhaps a recent experience of the writer's will prove of



An Improperty Shaped Flue.—Plan Followed by "W. B. G."

service to him in curing the evit. Having occasion to build a smelting furnace I placed it under an iron hood, which hood terminated about 20 feet from the ground in a round sheet iron stack 40 inches in diameter. The hood was fastened against a brick wall, in which was built a chimney with a 12-inch square flue in it. The inside of this flue was carefully plastered up, and into it, about 6 feet from the ground, the flue from the furnace entered. This chimney ended at the base of the 40-inch stack. The stack was open at its base where it joined the hood, and the idea was that it would act as a draft from the chimney, and also draw off all escaping fumes from the furnace. When this job was completed and the fire started the furnace would not draw, and as we required a smelting heat it was practically useless. To remedy the

trouble I had cast a plate with a collar | on it and a 10 inch hole. This was placed on top of the chimney over the I then put 30 feet of heavy 10. flue. inch sheet iron pipe on top of this plate, and securely fastened it to the side of the 40 inch stack, having it end just flush with the top of the stack. This proved to be just what was needed. The furnace now draws with a roar, and I find no trouble in obtaining a smelting If "C. H." will run his 12 inch heat. If "C. H." will run his 12 inch pipe flush with the top of his chimney his trouble will be most likely ended. He will find that 1 lineh good black iron or sheet steel will last longer for this purpose than galvanized iron. The gases from the fuel seem to act on galvanized iron and eat it all up. I have used both, and find black iron well coated with tar lasts longest for stacks tof any kind. With this letter I send a sketch showing the chimney which I constructed.

### Pumping Water Horizontally.

From E. R. B, Lexington, Ky — What is the limit, if any, that water can be pumped in a horizoneal direction, the size of the pipe being such as to practically destroy the friction, the pump to have lift of 15 or 20 feet?

Answer .- The motion of water in pipes involves friction which cannot be destroyed, although it may be overcome by gravity or pressure in long lines. There is practically no limit to the length possible for a pipe to be laid with the friction destroyed. If there is velocity, no matter how small, there is friction, and as friction and force are opposite exponents in the problem of flowing water, a few figures as to their relation will be in line with the subject. The ratio of friction for a given velocity is inversely as the diameter of the pipe and for a given size of pipe nearly as the square of the velocity. Thus the head required to move water in a 6-inch pipe at the rate of 2 feet per second, delivering 231 cubic feet per minute. will be but 0.4 loot for the first 100 feet; 0.8 foot for 200 feet and 4 for 1000 feet in length, rising to 21 feet per mile. In a 12-inch pipe the friction will be one-half the above and the volume increased four times. On the other hand, if the volume of flow is to be increased with a 6-inch pipe, say to twice the velocity as in the case above stated, or 4 feet per second, the friction head will be as the square of the increase or four times, which equals 84 feet head per mile of 6-inch pipe. In this manner, knowing the head (hydrostatic pressure) that can be maintained and the quantity of water to be delivered a certain distance, the size of pipe can be computed, or with a given size of pipe the quantity can be computed for any pressure head.

### Why Do Tin Strainers Act So?

From A. B. M., Canton, Ohio.—I would like to know why it is that perforated tin used as a coffee strainer makes the coffee blue black?

The new Anglo-Japanese treaty throws open the whole of Japan to British trade and industry. Hitherto

foreign trade has been confined entirely to a limited number of treaty ports, and foreign merchants have been hampered in their business by many vexatious restrictions.

### Our Human Machines.

The comfort of workmen is a matter to which a great deal more attention could be given than it at present receives. It is true, says The Iron Age, that the question is not wholly neglected when new factories are built or old ones are remodeled. Here and there employers can be found with hearts big enough to consider that the health and comfort of their working people are worthy subjects for their careful contemplation, and purse strings are loosened a little more to enable improvements to be made directly for the benefit of the man at the bench, lathe or rolls. But these instances are altogether too rare. When a new mill or factory is being designed, the highest talent will be employed and the utmost pains taken to secure the best type of building for the purpose. Foundations will be most carefully looked after, the character of the building will be very elaborately studied so as to provide safeguards against possible disast-r from overloading or damage by fire, and the arrangement of the machinery will take the most anxious thought. In these days of small margins labor saving devices will be studied in every direction, and the highest development of human ingenuity will be called into play to reduce loss of time in every direction, as well as to secure expansion of output. All these details, and more, receive anxious attention, but the best machine after all, the human machine, is too frequently left to shift for itself, with no special care. The human machine, while it is capable of withstanding very rough treatment with no immediately perceptible ill effects really needs better care than any other part of the machinery in the shop. It needs ventilation, protection as far as possible from drafts and overheating, proper warmth in winter, facilities for promoting cleanliness, and sanitary comforts. The greater part by far of a workman's waking hours is given to his employer, and there is no doubt that this part of his life could be made much more pleasant than it now is. Perhaps if this part of the factory machinery were more carefully looked after the other part of the machinery might be found to work better also. Even if this is not the case there is nevertheless a duty resting upon the employer to do his best in this respect.

Occupations innumerable can be found in which the workmen cannot be made comfortable while performing their tasks. It would be impracticable to attempt it. Yet, even in these cases the works would be less uninviting if a man were given an opportunity to wash up before he left the place to go home. It would be still better if he were also furnished with a locker in

which to keep some slight change of clothing and thus present a somewhat tidy appearance when on his way to and from work. Smutty faces and grimy hands and soiled clothing are not badges of dishonor, but they might be left at the gates of a rolling mill or the mouth of a mine or the door of a factory without detracting from the standing of a workman, but adding very much to his self respect and to the pleasure and esteem of his waiting family. In the matter of sanitary conveniences especially too little care is exercised. Horses are stabled with as much regard for their comfort as is paid to workmen in this respect. When a mill or other manufacturing establishment is erected at a cost of thousands of dollars or hundreds of thousands, it seems pitiful that a few hundred dollars could not be spared to provide sanitary conveniences of a comfortable and cleanly character. In these days water closets and the requisite plumbing work are not costly, underground drainage can be easily arranged, and water for flushing is always available from the supply tanks. Why should the most primitive methods still be found in use, creating disgust whenever a resort to them is necessary, and perhaps injuring the health of those who are obliged to work in their vicinity? The employer to-day, more than at any time in the past history of the world, can affirmatively answer the question, " Am I my brother's keeper?" He is, and it is incumbent on him to treat that brother as well as possible.

This seems to be an excellent field for the exercise of practical philanthropy. A fine library building in a manufacturing town is a most desirable institution. It is well to attempt to lead the minds of workingmen and their families beyond the mere contemplation of their surroundings, and give them an opportunity to enlarge their powers and breathe the atmosphere of something else than a material life, but the library building should follow the establishment of good wash rooms and toilet rooms at the works. There is where the care of a workingman should begin, in the promotion of his comfort and in ministration to his absolute personal necessities. The endowment of institutions of this character should precede the endowment of a library by

The Turkish Government has granted a concession for the opening up of a recently discovered deposit of manganese ore near Caradja, in the province of Aldin, Turkey. The deposit is said to have an area of 900 acres.

The cotton spinning industry is reported as making great strides in Japan in recent years. In 1887 there were in existence 24 mills, with 130,000 spindles, and in 1893 there were 43 mills, with 385,265 spindles. Manual labor being very cheap, the manufacturers are able to meet all outside competition, and the foreign imports of cotton goods are falling off materially every year.

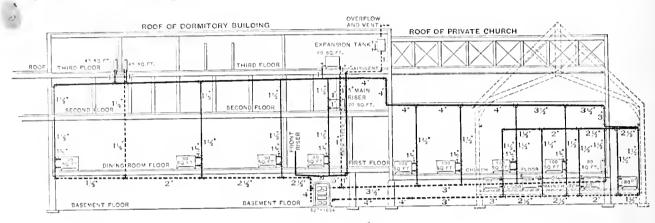
# STEAM AND HOT WATER.

### Heating the Rosary Hill Convent.

The heating plant installed in the Rosary Hill Convent, at Sherman Park, N. Y., by Albert Cryer & Co., 85 Centre street, New York, is interesting from

the 5 inch riser on the back wall of the building is shown. At the ceiling of the second floor, a plan of which is shown in Fig. 3, the 5 inch riser sep arates into two branches, a 3 inch branch running toward the dormitory with a fall toward the extreme end. A plan of

duced to 2 inch, to a point where a 1-inch connection is taken to another radiator in the dining room on the first floor. The main continues 2 inches until the end of the dormitory is reached, where it is reduced to 1½ inches and drops to a radiator in the



Heating the Rosary Hill Convent .- Fig. 1. - Sectional Elevation.

the different levels on which the radiators are located, some of which are very nearly on a level with the boiler itself. A No. 327 12-section Richmond boiler is used for the work, which carries about 2500 feet of direct radiation in addition to the piping, which is not covered, except the returns under the churches.

the third floor is not given, as it is similar to the plan of the second floor of the dormitory. A 1 inch connection is taken off to a radiator in the third floor and continues 3 inches in size until two 1½-inch connections are taken off, one to a radiator on the third floor and the other running over to the corridor,

MAIN RISER BACK

extreme end of the dining room, after which it drops to the return shown in Fig. 2. The return is 1½ inches in size until it reaches the return from the first dining room radiator, when it is increased to 2 lnches, and after receiving the second radiator increased to 2½ inches, and receiving the return from

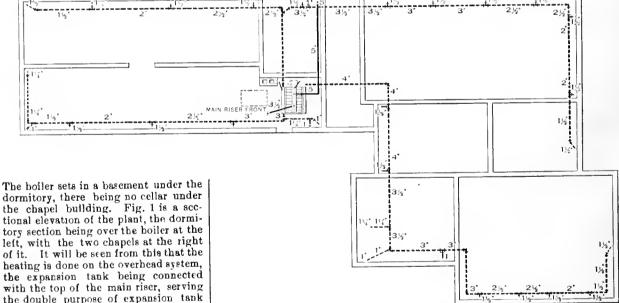


Fig. 2.—Plan of Basement and Chapel Foundations.

tory section being over the hoiler at the left, with the two chapels at the right of it. It will be seen from this that the heating is done on the overhead system, the expansion tank being connected with the top of the main riser, serving the double purpose of expansion tank and air vent. Fig. 2 shows a plan of the basement with a 5 inch riser running from the back of the heater to the back wall of the dormitory building and a 81 lnch flow main running to the front wall of the building. shows the system of return mains. There being no basement under the chapels and the floors of the chapels being on different levels the return mains are wrapped with layers of asbestos paper, halr felt, bullding paper and then covered with canvas. In Fig. 2 only

connecting with a radiator and dropping into a radiator below in the passage on the first floor, a plan of which is shown in Fig. 4. The main is then reduced 2½ inches and continues to a point where a 1½ inch connection is taken to a radiator in the dining room on the first floor, after which the main is re-

the last radiator continues 2½ inches in size until it meets the branch return from the chapel building. The 4 inch branch from the 5-inch main riser continues over to the end of the dormitory building, where it makes a drop of several feet to the ceiling of the private chapel. The celling of the private

chapel is arched, being 33 feet in hight at the center and about 23 feet in hight on the sides. This main continues 4 inches in size until four 1½ councertons have been taken to four radiators in the private chapel, after which it reduces to 3½ inches, which size it continues to a point where it drops down to a level of the ceiling in the main church, two 1½ inch connections having been taken

dormitory. It then merges into a 5-inch return and runs to the boiler. The 3½-inch flow main, which is taken from the front of the boiler rises to the ceiling of the second floor and is divided into two 2½ inch branches, one running along the dormitory until a 1½ inch connection is taken to the radiator in the chapter room on the first floor. It continues 2½ inches in size until a second

connection is taken to a radiator in the same room. At this connection it is reduced to 1½ inches until a 1 inch connection is taken to a radiator in the hall. The main then continues the same size until a 1 inch connection is taken to a radiator in room 1 on the first floor, after which it is reduced to 1½ inches and runs to a radiator in room 2 on the first floor. The return from this system

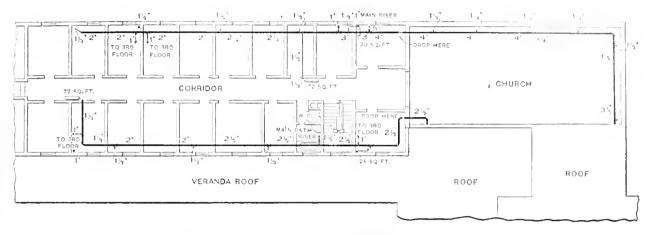


Fig. 3.-Plan of Second Floor, with Mains at Ceiling.

from it to radiators in the private chapel. The ceiling in the main church is 31 feet in hight in the center and 20 feet at the sides. After having made the drop the main is 3 inches in size, a 1½-inch connection being taken off to a radiator in a room between the private chapel and the main church. The main then continues 3 inches in

connection is taken to the radiator in the chapter room, after which it is reduced to 2 inches and continues to the last radiator in the chapter room. After this connection the main continues along the ceiling to a radiator in the far end of the corridor on the second floor, the return dropping down to the basement and returns, as is shown in Fig.

commences with the radiator in the end of the main church at the right of the entrance and is  $1\frac{1}{2}$  inches in size up to the first radiator, and on receiving the connection from it is increased to 2 inches until the second radiator is reached, when it is increased to  $2\frac{1}{2}$  inches, and continues until the fourth radiator is connected with it, when it is

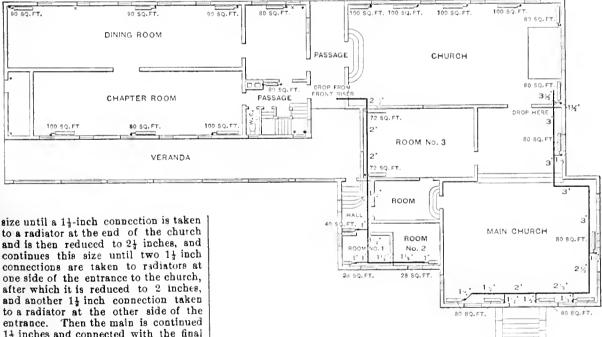


Fig. 4.—Plan of First Floor.

size until a 13-line counterion is stack to a radiator at the end of the church and is then reduced to 2½ inches, and continues this size until two 1½ inch connections are taken to radiators at one side of the entrance to the church, after which it is reduced to 2 inches, and another 1½ inch connection taken to a radiator at the other side of the entrance. Then the main is continued 1½ inches and connected with the final radiator on this branch. The returns for the radiators in this section of the building are divided, a 1½ inch return being taken from the radiator in the room between the chapel and church and continues until the return from the first radiator in the chapel is received, when it is increased to 2 inches in size, and after receiving the second radiators when it is increased to 3 inches until connections from the first two radiators when it is increased to 3 inches until connections from the last two radiators are received, when it is increased to 3½ inches in size until it reaches the branch return from the

2. The other  $2\frac{1}{3}$  inch branch runs toward the chapei buildings, a 1-inch connection being taken to a small radiator on the second floor. The main continues this size until the point where it enters the chapel building, where a drop of several feet is made. After reaching a line level with the ceiling in the chapel it passes through the wall and a connection is taken to a radiator in room 3 on the first floor. Here it is reduced to 2 inches in size and a second

increased to 3 inches. It continues this size, receiving the connection from the radiator in room 2, and on receiving the return from the radiator in room 1 is increased to 3½ inches in size, receiving the return connection from the radiator in the hall and is then increased to 4 inches, receiving the connections from the two radiators in room 3, after which it returns to the boiler with an independent connection. The return from the radiator on the second floor in the

small room at the right of the hall and from the radiator in the room above it on the third floor are connected with the return from the front of the dormitory. The ceilings in the dormitory are 12, 10 and 9 feet in hight on the first, second and third floors respectively. Under test this plant shows a rapid circulation and a temperature at the returns such as is considered an evidence of a well constructed job.

### HEATING NOTES.

Col. W. C. Mowry of Norwieh, Conn., has proved that he is not alone popular in the heating trade by being elected Secretary of the State of Connecticut by a plurality of something like 15,000. Col. Mowry assumes office on January 1.

THE SPRINGFIELD COIL BOILER COMPANY, 48 Hampden street, Springfield, Mass., have had their shop running full time in turning out their coil boiler for house heating.

THE PHILLIPS MFG. COMPANY, Spring field, Mass., are equipped for supplying wrought iron pipe of all sizes cut to lengths. They have recently erected the piping in the power house of the Springfield Street Railway Company, using no ells, but making all turns with large sweeping bends in the pipe, which was of the extra heavy grade.

B. Mallory, representing the stove department, and T. J. Douglas, representing the steam and hot water department of the Richmond Stove Company, Norwich, Conn., were traveling Weatern Massachusetts together this week.

SHUMWAY & RILEY, Northampton, Mass., have erected a number of steam heating plants this year on the circuit system, using the Richmond hoilers, all of which have proved satisfactory during the recent cold spell which covered western Massachusetts with snow.

SIAS & STEWART, Springfield, Mass., can refer to many steam and hot water plants of their construction that have been tested satisfactorily. They are a pushing young business house.

THE NEW YORK EXHAUST AND BLOWER PIPE COMPANY, Hartford, Conn., have just completed an exhaust system for handling shavings for the West Norfolk Lumber Company, at West Norfolk, Va. They fitted the factory of the Pope Mfg. Company, Hartford, Conn., with an exhaust system for removing the dust from the polishing wheels in their nickel plating shop and are arranging systems in the factories of Strauss Bros. and the H. E. Taylor Company, New York. They do a large business in the sheet iron work for indirect heating systems and fan systems.

THOMAS M. HARTLEY, a hot water expert from the Howard Furnace Company, New York, was a visitor at the Cowles-Couch Company, Hartford, Conn., this week.

THE MUNCIE ARCHITECTURAL IRON WORKS of Muncie, ind., are reported by the local papers to be very actively at work making radiators, among other cast iron products.

A LONDON CABLE DISPATCH of November 14 advises us that owing to the prevailing lowness of prices several Welsh tin plate works have been shut down.

### SCRAP.

THE FRANK-KNEELAND MACHINE COMPANY, Pittsburgh, Pa., are busy on tin plate machinery for Goldsmith & Lowenberg's new tin plate mill, at New Kensington, Pa., consisting of hot and cold mills, doubling shears, squaring shears, &c. The firm have also booked orders for the machinery for the Crescent Sheet & Tin Plate Company of Cleveland, Ohio.

The falling off in the value of the and terne plates imported into the United States during the first nine months of this year, prior to the change of duty, was very marked. According to the official Treasury records the total value of these plates on which duty was paid under the old scale up to September 30 was \$8,662,376, as compared with \$13,366,229 in the same period of last year.

A PRESS DISPATCH from Youngatown, Ohio, states that a firm in Wheeling, W. Va., has been figuring for some time with the Lloyd Booth Company of Youngstown about putting in a tin mill in the former city. Definite action was delayed pending the result of the recent elections. A few days ago the Youngstown firm received a telegram from the Wheeling people saying they would be ready to close the contract for the building of the plant within a few days.

THE TIN PLATE PLANT of the Muerer Bros., 575 577 Flushing avenue, Brooklyn, has been maintained in full operation up to the present time. A very gratifying demand is reported for their high grade American roofing plates, which is sufficient to absorb their product as fast as it is put out. The firm contemplate some important improvements in their tin plate department in the near future.

THE MORLAIS TIN PLATE WORKS at Llangennech, Wales, have recently passed under new ownership and are being enlarged and improved.

IT IS REPORTED that Stratton & Terstegge of Louisville, Ky., contemplate the erection of a tin plate plant in that city

Nothing further has been heard of any definite action by the Welsh tin plate manufacturers toward reducing the wages of their workmen. A largely attended meeting of the Manufacturers Association was held at Swansea a short time ago to consider the matter, but it is understood that decision in the question was postponed to another meeting to be called later. Strong opposition is expected from the workmen, and it is considered highly probable that a number of the works may be obliged to shut down if the reduction is enforced. The Welsh manufacturers claim that higher prices cannot be asked for tin plates if the American competition is to be met, and that existing prices offer little or no profit. The only way they can see out of the difficulty is by lowering the cost of production, and this can only be done by a reduction in the wage scale.

In Answer to the report that the Chartiers Iron & Steel Company, Limited, of Pittsburgh, manufacturers of fine sheet Iron and sheet steel, and whose works are located at Carnegie, Allegheny County, Pa., would erect a tin plate plant in the near future, we are officially advised that the statement is untrue. It is suggested that the report was gotten up for the purpose of booming some of the street car lines which are now under way in the direction of Carnegie.

As ALREADY NOTED in these columns, the Beaver Tin Plate Company have been organized at New Lisbon, Ohio, and are now engaged in the erection of a tin plate plant at that place. The main or mill building will be 200 x 100 feet in size and will be of iron. The tin house will be 60 x 184 feet and will be built of brick; the annealing house will be 70 x 80 feet and will be built of iron, while the boiler house will be 45 x 60 feet and will also be of iron. The boiler house will have a capacity of 600 horsepower. The foundations are now being put down for a six mill train of hot rolls, though only four will be put in at present. The foundations for the cold rolls of four mills have already been completed. The engine to drive the hot mills will be 32 x 60 inches, and for driving the cold mills 26 x 48 inches, and both will be of the Corliss type. Electrical cranes will be installed, one of 12 tons capacity in the main building and one of 5 tons capacity in the annealing and tin house. The entire piant will be equipped with the most modern and labor saving machinery of the highest clasa. The work of construction is being pushed as rapidly as possible, and the new concern expect to be in the market early in the coming year. Charles W. Bray, formerly accretary of the Lloyd Booth Company, Youngs-town, Ohio, is president of the Beaver Tin Plate Company.

It is stated that a company of Pittsburgh capitalists have about closed a deal for the purchase of a site in New Kensington, Pa., on which a tin plate plant will be erected. It is stated this new plant will be about one-half the size of the one now under erection by Goldsmith, Lowenberg & Co. of that place.

On Tuesday, the 13th inst., operations were resumed at the plant of the United States Iron & Tin Plate Mig. Company, Demmler, Pa., with non-union men. The start is said to have been successful, a large number of skilled workmen having been obtained from Pittsburgh, Beaver Falls, Braddock and other places. The men are being cared for in a hotel owned by the firm and located near the works. Be-fore the end of this week additional departments of the plant are expected to be put in operation. A start has also been made with non-union men at the tin plate plant of Wallace, Banfield & Co., Limited, at Irondale, Ohio. The resumption of work at these two plants with non-union men is the entering wedge of what promises to be a very bitter fight between the Amalgamated Association and the firms composing the Tinned Plate Manufacturers' Association.

THE ANDERSON FOUNDRY & MACHINE COMPANY, Anderson, Ind., whose leading product has hitherto been brick and tile machinery, have made a new departure. They have secured the services of an expert in the manufacture of tinning machinery and are now prepared to take contracts for equipping tinning plants. They will manufacture the Thomas & White pot, tinning rolls, pickling machines, annealing boxes, floor plates, &c. They have already taken some contracts for tinning outfits. Last week they cast their first pot. The company have also decided to build engines up to 40 horse-power, as they find this necessary in competing for trade. For some years past they have manufactured a steam boiler for house heating which has had a good local patronage.

## ROOFING AND GORNIGE.

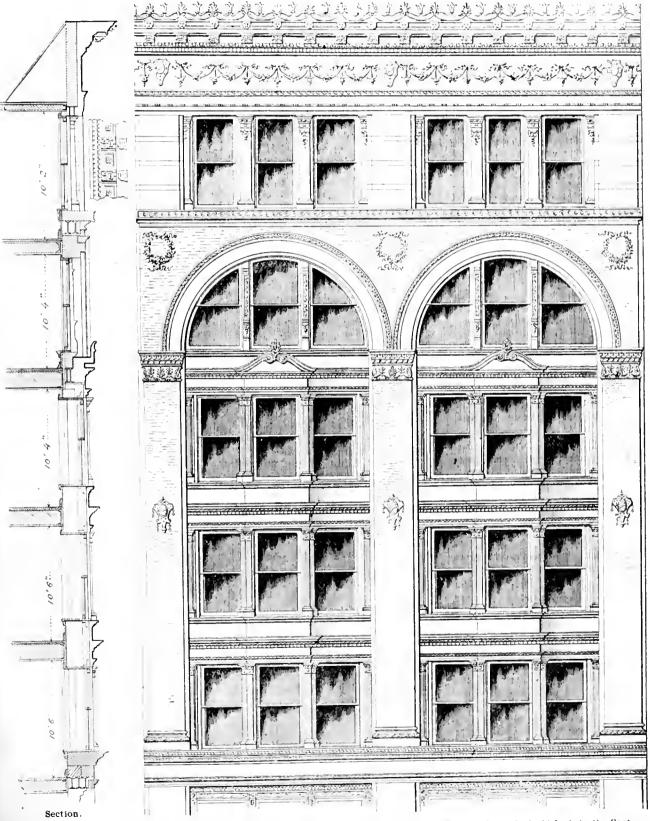
struction.

The employment of sheet metal in the fronts of buildings designed for busi- | ment of structures in many of the cities

Sheet Metal in Building Con-struction.

ness as well as dwelling purposes has grown so rapidly during the past few years as to form at the present time a marked feature of the external treat-

of the country. This in reasing use is due, no doubt, in some measure to the fact that sheet metal permits of ready ornamentation at comparatively small cost, and also constitutes in itself a light



Front Elevation of Business Block on East Houston Street, New York City. -Scale, 1/2 Inch to the Foot. Sheet Metal in Building Construction.-George H. Griebel, Architect, New York City.

form of construction, while at the same time giving bold and massive effects to the completed work. A striking example of work involving the use of copper and galvanized iron in the manner mentioned is found in a bullding now rapidly approaching completion on East Houston street, New York City. The front of the structure, which is seven stories in hight, is divided above the accound floor by a brick pilaster into two triple window bays, the exterior of the bays being covered with 20ounce copper. The object in view has been to produce rich and massive effects with a light form of construction and in this the concern doing the work, Borkel & Debevoise of 42 44 East Houston street, New York City, have been very successful. The illustrations which we print herewith represent the front of the structure above the second story, while the section shows the profiles of the copper work at the various stories, together with the appearance of the soffit of the cornice. Inspection of the front elevation shows the pilasters dividing the windows of each bay to be fluted, while the cornice of the windows at the different stories is enriched in a pleasing manner. As stated above, the two bays extend upward for a distance of three stories, and are topped with broken pediments. The story immedi-ately above the bays is finished in the form of two semicircular arches, which carry the weight of the upper story. The copper is fastened to an iron frame work which is moored to a rough brick backing. The whole treatment of the front is harmonious, giving to the building a rich and substantial appearance. The architect of the structure is George H. Griebel, of 247 West One Hundred and Twenty-fifth street, New York, who prepared the plans for Emil Unger.

## The Pattern Cutting Class at the Pratt Institute.

As previously noted in these columns, the new evening class in sheet metal pattern cutting, in connection with the trade school of the Pratt Institute. Brooklyn, N. Y., commenced its session on September 24 with a limited number of pupils, but with every prospect before it of a career of great usefulness. Several applicants for admission to the class who were accepted did not, however, materialize at the last moment. This fact is to be regretted, as it tends to discourage the authorities of the school, who have taken great pains to provide a much-needed course of trade instruction. The candidates who have joined the class, however, are reported to be making extremely satisfactory progress. They evince great interest in their work, are regular and attentive, and promise to make a good showing at the end of the term. Probably the existing hard times and the recent dearth of employment in the building trades precluded more young men from taking advantage of this opportunity of instruction in sheet metal pattern cutting, and it is expected that the next session will make a more favorable showing in point of numbers. At present the class is being instructed in a special course of pattern drawing by Louis Roulllion, the mechanical drawing instructor of the Department

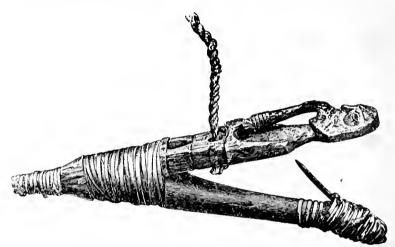
of Science and Technology of the institute. Mr. Rouillion intends to keep the pupils at this work for the first term of three months, after which arrangements will be made for a more specific course of instruction in connection with practical sheet metal work. The director of the department, Professor Richards, has consented to receive applications from any young men in the trade who have already a good knowledge of mechanical drawing and who desire to join the class at the beginning of its second term on January 2, 1895. Such candidates would, however, if accepted, be expected to satisfy the instructors that their knowledge of pattern drawing is at least equal to that of the pupils who have gone through the preliminary course at the institute.

Both Professor Richards and Instructor Rouillion express themselves as highly pleased with "The Metal Worker The management of this company is now in the hands of B. H. Gedge, who was for years connected with the American Wire Nail Company in an active capacity and who brings to the new concern the advantage of his experience in assisting to build up a great institution from a small beginning.

FERRIS BROS., South Manchester, Conn., have been awarded the contract to put the tin roof on the new building of the Manchester Electric Tramway Company, which is to be used as a car house, repair shops and office. The work will require about 3 tons of M. F. tin and 500 pounds of solder.

### Aboriginal Curio.

The primitive Fish Hook here represented is one made and used by the Aleut Indians in Alaska for catching halibut. It is constructed of two pieces of wood, properly shaped and fastened with a withe, apparently made of some kind of willow or reed, split flat. The iron



Alaskan Fish Hook, About One-third Size.

Pattern Book," to which they say they are indebted for valuable help in regard to the course of instruction they are mapping out for the new class.

### FLASHINGS.

N. S. Beebe, Springfield, Mass., makes a specialty of sheet metal work for buildings, the cornices, fronts and windows of many buildings in and near Springfield being samples of the work designed and produced in his shop.

ATWATER & McCABE, Springfield, Mass., show some very handsome sheet metal work in the copper window fronts of the new Y. M. C. A. Building.

THE PORTER IRON ROOFING COMPANY, Anderson, Ind., have quite recently completed a plant for the manufacture of iron and steel sheet roofing and siding. Their products comprise standard crimped roofing, center crimp roofing and siding, corrugated sheets, round and angle ridge cap, standing seam roofing, roll and cap roofing, weather boarding, &c. The plant is equipped with the latest improved machinery for the manufacture of roofing and siding. Power is furnished by a gas engine, which does its work satisfactorily and very economically. The factory is located near the belt railroad which runs around the city, and the company are now putting in their own track to enable them to make direct rail shipments and save cartage.

hook, something like a pointed Wrought Nail, is also secured with a withe. On this hook the bait is placed, and in trying to get it the fish is caught. Passing through the center is a rope about 36 inch in diameter, made of twisted withes, fastened underneath swivel-like, so as to turn freely. When in use the hook maintaius a horizontal position. The suggestive action shown in the rude carving in putting the hand to the mouth may be based on actual results in the augler's experience, indicating that with the hook and the hand the mouth is filled. The greatest dimensions of the hook are 1134 x 5 inches. This interesting curio, temporarily in the possession of Henry C. Squires, 20 Cortlaudt street, New York, is the property of Rev. Dr. John C. Bliss of New York, who brought it from Sitka two years ago.

Work on the new battleships "Indiana" and "Massachusetts," at Cramp's shipyard, Philadelphia, is progressing rapidly. In two days of last work the workmen placed in position seven of the heavy 40 ton 18 inch side armor plates of the "Indiana;" 12 of the 20 plates are now in position, 6 more are ready for placing and only 2 remain to be shipped from Bethlehem. The barbettea of the vessel are almost completed. The work on the "Indiana's" armor is regarded by the contractors as being remarkably rapid and satisfactory. The "Massachusetts" is nearly ready for her builder's trial.

### The Everclean Stone Filter.

A filter for which special merita are claimed is being manufactured by the Stifel-O'Neil Home Comfort Company, St. Louis, Mo. A general view of the No. 1 filter to shown in Fig. 1. This filter has a capacity for furnishing all the water for a large family, for drinking, cooking and even laundry work. Fig. 2 shows a sectional view of the No. 3 Everclean filter, which is the smallest the manufacturers make, having a ca-pacity only sufficient for the kitchen and dining room needs of a small family. The general principle of the two filters is the same, and by referring to the sectional view its operation will be understood. A is the supply pipe through which water is admitted to B, through which it is carried to the cylinder C, from whence it is driven by the pressure through the stone E into the channel F, and thence up into the chamber G. it p sees through the hose connection H to a bucket or other receptacle that may be provided for it. When the stone E becomes coated with mud the depression of a hand lever opens the Fuller ball cock at J, and at the same time admits the city pressure through another Fuller ball cock at L into the top of the cylinder M. The

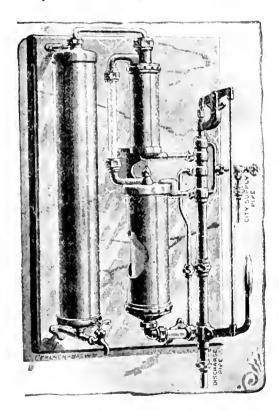
ment, intimate that there is as yet little or no opening for the importation of machinery into Chins. The Chinese have not yet been convinced of the utility of adopting any modern labor saving machinery. Perhaps one of the effects of the present war may be the enlightening of the celestial mind and the opening up of China in this respect.

### News and Notes.

The estimates of the Naval Ordnance Bureau for the coming year call for an expenditure of nearly \$7,000,000, of which \$5,237.670 is for the armament of vessels already authorized, and \$25,000 for arming and equipping the naval militia.

The railroads in Indiana, Illinois and Ohio are said to be experiencing great difficulty in filling the demand for freight cars, more especially stock and coal cars. The demand from shippers is referred to as showing an extraordinary increase since election.

The combined manufacturers of Cincinnati and its neighborhood have issued a general call for a convention in that city on January 22, 1895, to form a National Manufacturers' Associ



The Everclean Stone Filter.-Fig. 1.-General View of No. 1 Everclean Stone Filter.

water thus admitted forces the piston downward, driving the water in G through the channel F and out through the stone E into the annular space D, carrying with it the mud, which falls with the water down through the ball cock J into the waste. When the lever is raised again the waste cock at J is closed and the filtered water again is driven up through the channel F into the cylinder G, forcing the piston ahead of it until it reaches the top of the stroke. When this is done the outlet H is opened and the filtered water has free passage to the reservoir.

Recent reports from the British Consul at Chefoo, China, to his Govern-

ation. The purposes of the proposed organization, which is to be of a non-political character, will be to secure wholesome legislation for the encouragement of manufacturing and to stimulote favorable trade relations with foreign countries.

Texas cotton growers have decided not to sow any more than one-half this year's acreage of cotton next season, owing to the present low selling price of cotton, which, they claim, is from 1 to 2 cents a pound below the cost of production.

Superintendent Hannan of the New York State Department of Public Works, has ordered that the Erie,

Champiain, Black River, Oswego and Caynga and Seneca canala be closed for the season on Friday, November 30, at midnight, unless sooner closed by ice.

The second attempt to carry out a speed trial of the new United States torpedo boat "Ericsson" was defeated on Monday by another breakdown in her machinery just after she had started on her trial trip. The eccentric strap of the port engine broke while under full headway. Professional opinion tends to the belief that the "Ericsson's"

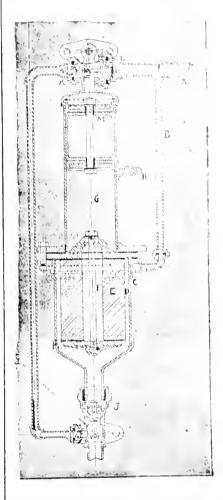


Fig. 2.—Sectional View of No 3 Filter.

castings are too light for high speed in rough weather. This, however, is no fault of the builders, they having been made according to the Government specifications.

The Ottoman Minister of War has decided that in Inture Mauser and Martini-Henry rifles will be manufactured in the workshops of the Government arsenal at Constantinople, instead of being obtained from abroad. To this end the workshops are being fitted with the necessary plant. Special laboratories are also being constructed for the manufacture of a smokeless powder invented by a Turkiah officer.

An order in council has been issued by the Canadian Government amending the regulations governing the payment of drawbecks on duties on articles entering into the construction of goods manufactured in the Dominion for export. Hereafter 99 per cent. of the duty paid will be refunded instead of 90 per cent. The change will place Canadian manufacturers in an extremely favorable position to compete in foreign markets with the manufactured products of other countries.

# THE TIN SHOP.

## Pattern of Can Top Having One Side Vertical.

From J. A. J. Knoxville, Tenn.—Will The Metal Worker give a correct method for obtaining the pattern of a can top having one side vertical? In the aecompanying sketch A B C D represents the elevation of article, E F G H the plan of base, and E J K L the plan of opening in the top.

Answer. - In Fig. 1 is shown a reproduction of our correspondent's sketch. Fig. 2 shows another drawing of the same form, somewhat larger, with which is also shown the method of deriving the patterns. Since the top and the base of the can top are both circular and are parallel, the shape of which the pattern is required becomes a frus tum of a scalene cone, and lines drawn upon its surface from any set of points assumed in the circumference of its base to its apex will divide the circumference of the top into similar and proportionate spaces. Therefore, the first step is to extend the lines of the aides B A and C D until they meet at M, the apex. Next divide the plan of

ELEVATION

F

PLAN

Pattern of Can Top Having One Side Verticat — Fig. 1.—Plan and Elevation of Article for which Pattern is Required.

toward the apex M, cutting the line of the top B C, all as shown. With M as center describe ares from each of the points in the base line A D, and extend them indefinitely in the direction of O. In the same manner draw ares from the traced through these points, as N Q O, will be the bottom of the pattern. From the points in the line N Q O draw lines cutting the arcs of corresponding number previously drawn from B C; then a line traced through these points

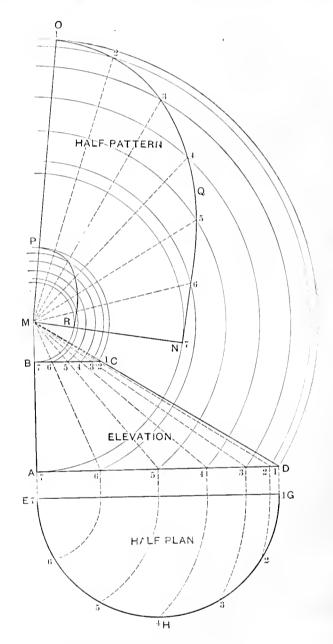


Fig. 2.—Method of Obtaining Pattern.

the base, one half of which, E H G, only is shown, into any convenient number of equal spaces, as shown by the small figures. As it is necessary to ascertain the distance from each of these points to the apex of the cone the simplest method of accomplishing this is as follows: From E as a center, with E 6, E 5, E 4, &c., as radil, describe ares cutting E G. Carry lines vertically from each of the points in E G, cutting the base line A D; thence carry them

points of intersection in B C, as shown. From the apex M draw any line to intersect the arc from A or 7 of the base line, as M N, which will form one side of the pattern, corresponding to B A of the elevation. Set the dividers to the space E6, used in dividing the plan of the base, and starting from N step from arc to arc, thus laying out the stretchout of the base E H G, and at the same time locating each point at its proper distance from the spex M. A line

of intersection will be the top of the pattern, and PRNQO will be one-half the required pattern.

Victor de la Cordova, a New York exporter, has been held by the Federal Grand Jury in \$25,000 bail for placing cartridges among barrels of tallow shipped in the Ward Line steamer "Yumurri" for Havans. It is said that the Ward Line owners attribute the diaasters to their other vessels during the past year to a similar source.

#### Howard Hot Alr Blast Furnace.

To meet the growing demand for a furnace that will efficiently burn soft coal, the Howard Furnace Company, Syracuse, N. Y., have lately patented

understood and the arrows show the course of the air as it rises through them to the fuel and combustion chamber. The special feature of this ar rangement is the provision it makes for heating the air to a high degree, which is one of the essential conditions



Howard Hot Air Blast furnace.

and put on the market the Howard hot air blast furnace, a transparent view of which is presented in the accompanying illustration. The difficulty in burning soft coal is to so proportion and so distribute the air that the coal will be perfectly consumed and no heavy smoke formed. To accomplish this desirable result the hot air blast, as they term it, has been patented. The device consists of a sort of skeleton fire pot, arranged within the fire pot of



Fig. 1.—Perspective.

of smoke prevention. The attachment is not in any way complicated and, what the trade will appreciate, it is so made that the whole or part of it can

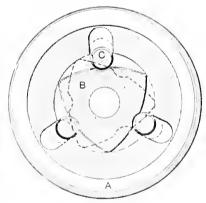


Fig. 2,-Cross Section.

THE TRIMO NIPPLE HOLDER

the furnace and made of segments connected with vertical grooved sections that extend to the sah pit of the furnace. These vertical grooves form shallow channels between the fire box proper and the supplementary lining through which the air rises above the fuel. By referring to the illustration the position of these channels will be

be placed in the fire pot of the furnace through the feed door without disarranging the furnace proper. Another feature of the hot air blast to which the manufacturers allude is the ease of regulating the supply of air under the control of one damper. In summing up the merits of the Howard hot air blast the manufacturers refer to them as followed.

cutter the greater the grip on the nlpple, as the tendency is to move the rolla toward the outer ends of the cam.

Application is to be made to the Dominion Parliament to incorporate a company to build a trans-Canadian railway from Quebec to Fort Simpson on the Pacific Coast.

lows: Heated air is Introduced to the fire and a sufficient supply of oxygen admitted, a powerful refrigerating influence avoided and a more rapid mixture obtained, the result being that the smoke is reduced to a minimum and the heat of the coal utilized more thoroughly. The furnace is made with diameter of tire pot ranging from 18 to 30 Inches, and estimated heating capacity of from 5000 to 60,000 cubic feet. The Howard Furnace Company have issued a descriptive and illustrated eircular of this new furnace, which deserves more than casual mention, be-cause it presents the merits of the system in a perfectly clear and concise way. The pamphlet was apparently written by one who thoroughly understood the theory of combustion and has explained it in a way to appeal to the intelligent and practical man.

#### The Trimo Nipple Holder.

The Trimo nipple holder, made by the Trimont Mfg. Company of Roxbury, Mass., will hold nipples to cut either right or left hand threads. It holds the pipe firmly and releases instantly when reversing the die. It is adapted for either vise or machine use, and the nlpple can be placed or removed without stopping the machine. The collar of this holder is suitable to fit the sleeve of the stock for the size pipe it is intended to hold, thus insuring a straight threaded nipple. When used in a machine the collar surrounds and fits the outside of the thread already cut and the rolls lock on the inside of the pipe, making the hold firm and true.

The construction of the holder will be understood from the engravings, Fig. 1 being a perspective view, Fig. 2 a section through the gripping mechanism and Fig. 3 a perspective view with parts broken away. On the outer end of the shank is formed the triangular cam B. In longitudinal recesses formed in the body are the locking rolls C, which are pressed against the cam faces by aprings. The nipple is introduced between the collar A and these rolls. It is evident that when the collar is moved so that the cam occupies the position indicated by the dotted lines, the three rolls will be forced outward against the inside of the nipple, which will be held firmly between the rolls and collar. Moving the cam in the opposite direction will permit cutting the opposite thread. The greater the strain of

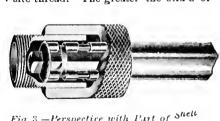


Fig. 3.—Perspective with Part of Shell Broken Away.

# PLUMBING and GAS FITTING.

Evening Classes at the New York Trade School.

The work of the evening classes at the New York Trade School is progressing very satisfactorily. Considering the depressed condition of the building trades in this section during the past year, the number of candidates presented for enrollment in the various classes on October 15, the opening night of the fourteenth season of the school, is considered encouraging. Naturally, with the distressing lack of employment which so many mechanics have experienced of late, the applications for instruction have not been so numerous as they were last year.

The evening plumbing class, which last season was somewhat overcrowded, having 143 pupils, is this year composed of 103 young men, and this proportion of decrease is about the rule in all the other classes. The falling off ia most marked, not among the beginners, but among the apprentices and younger journeymen who are already working at their trades. The total number of pupils under instruction in all the evening classes is 228. This includes the plumbing, carpentry, blacksmithing, stonecutting, bricklaying and plastering, house and fresco painting, and the printing classes. About 90 applications have been received up to date for the day plumbing class. Probably a few more names will be added to the list before the opening of this class on Monday, December 3.

A good deal of interest appears to have been aroused in connection with the two new classes which will be inaugurated this winter-namely, those in tinsmithing, roofing and cornice work, and in steam and hot water heating. Numerous inquiries have been received by the trade achool officials in regard to them, and it is hoped that they will be enabled to start up these useful branches of instruction with a goodly number of candidates. Applications for admission to them should be transmitted as soon as possible to the New York Trade School, First avenue, Sixty seventh and Sixty-eighth atreets, New York City.

#### Plumbing Class at the Pratt institute,

The trade school classes of the Pratt Institute, Brooklyn, are fully as well attended this season as they were last year. The plumbing class in particular is manned to its fullest capacity. Had the accommodation for pupils been conaiderably larger there would have been

no difficulty in utilizing it, a number | of applications for admission having been refused owing to lack of space. The present plumbing class is composed in part of second term pupils, who are going through a more advanced course of instruction than the beginners, and who will, if successful, be awarded the certificate of the institute at the close of the current season. A new feature is a course of weekly lectures in the higher branches of scientific plumbing which are being given by Instructor John Todd to the second-year pupils.

#### Cleaning Solder.

BY OLIVER TWIST.

This is something that I believe is not understood as well as it should be by the plumbers of to-day. There are certainly a large number who do not understand it at all, especially in country towns, where they have largely to depend upon their own resources for their

knowledge of the trade.

Among the many difficulties the country plumbers have to meet, this one of cleaning solder has bothered them not a little. They mixed their first lot of solder with great care—just so much of tin and just twice that much of lead-and they have started out to learn the art of wiping joints. They once had the opportunity of seeing a man who knew how to do it well and they watched him. My? how nicely that solder worked, to be sure. How bright it was. How smooth. How it could be moved and molded into shape, just like so much butter. They went home and tried it. It worked nicely for a while, How it could be although they burned their fingers oc-casionally. But wait awhile. What can be the matter with the solder? "It seems to set and cool about as fast as I can pour it on the pipe, and when I go to move it to get it into shape, off it falls in chunks; not adhesive at all, no ductility. It cools quite a white color, works like sawdust." "Well," you say, "if it cools so quickly, the metal can't be hot enough." "Yes it seems hotter in the pot than it was be-fore." Then comes the question: "How

It is when they have come to this  $\epsilon x$ perience that many a boy has laid down the ladle with disgust, and has become completely discouraged. Cheer up boys, there is a way out of the difficulty. Let me see if I can lead you to it. You may have spoilt your solder by overheating it. Some foreign aubatance may have got into it. You may have caused it by dipping brass couplings, &c., into the pot, in order to tin them (Don't do this on any account; tin all your brass work with a copper bolt, or soldering iron, as some prefer to call it.) It is liable to occur when wiping on brass couplings, ferrules, soldering nip-ples, &c. The reason is that brass is an alloy of zinc and copper, and the solder readily mixes with zloc, and a very small portion of zinc is sufficient to cause the lead and tin to crystallize and

separate. Now for the cure. solder must be made extra hot, almost twice the heat it should be if it was all right. Plumbers' solder melts at 440°, to clean it we want to raise it to 800°. What for? Because zinc melts at 773°. and we want to bring it to the surface. so that we may akim it off. Don't make it red hot in the daylight, or you will have reached a temperature of about 1100° and you will spoil it. Throw in a lump of sulphur, which by mixing with the zinc will help it to float. Stir up the whole thing well, and akim off the top, which will be a mixture of lead oxide, putty powder, sulphur and zinc. Then when it has cooled down to about the working point stir in lots of tallow and a little roain, which will take the aulphur out of the metal. Then after adding a little tin to pay for what we have loat by overheating the metal, it

will be ready for use again.

Another way to obtain the same result would be to granulate the solder by pounding it. When it reaches the cooling point it will break up as fine as sawduat. Then put it into some dish or other and cover it with spirits of salts, and allow it to stand over night. Then after remelting and adding a little tin it will be all right. Your solder may not be zincky, but burnt through inattention. If it becomes overheated do not atir it, but allow it to cool down to working heat, when the addition of a little tin will cure it. If you consider that tin forms putty powder at 428° and lead oxidizes at 612°, the two together at 440°, what do you think will become of it if you make it red hot in the day time—about 700° hotter than it should be? No wonder if it will not work right. Do not add fine solder or atrap solder to your metal unless you are sure of what it is made of. Solder that you buy is often adulterated with antimony, bismuth, &c., which gives it a bright appearance and makes it look good. It will form teats on the bottom of the joint in spite of you. You need to be very careful what you put into the pot if you would have good work. Don't melt zinc in the pot or ladle at all, as it is very troublesome to get rid of. Now make a note of this table.

#### English and American Plumbing.

Between the work of the American plumbers and the English workmen in the same line, says the Plumber and Decorator, there are a great many radical differences; in fact, the plumbing business in Great Britain and America is carried on upon entirely different lines. On this side of the water the plumber habitually does roofing, makes pipea and flishings, usea lead wastes, makes lead fixtures, is usually a gas fitter and very generally does decorating work. To a huilder he is very frequently a general utility man.

It is very rare to find an American plumber in the roofing business. In

fact, the two lines are usually as separate and distinct, in all except the smaller shops and these with questionable characters, as the dry goods trade and the grocery trade would be. As far as England is concerned the union of the two trades was a very natural one, because in the early days the lead roof was one of the most common coverings for buildings, and the plumber being a lead worker found quite as much to do on the roofs as with either parts of the drainage of a house. In fact, it seems that the plumber's original business was that of the sheet lead worker, and consequently he was really more of a roofer than anything else, and being a roofer flashings were part of his work.

The use of the outside waste and vent pipes is something that it is very difficult for the American plumber to understand. In such work open joints or their equivalents are necessary for taking up expansion and contraction. The fact that the winters are comparatively mild prevents the wholesale destruction of the plumbing which would take place in that country with a similar con-struction. The outside position of the pipes renders them less liable to destruc-tion by vermin than if they were placed within the building. The fact, how-ever, remains that the winters are frequently severe enough to produce frost, and at such times it is difficult to see how a lead system on the exterior wall of a house could be operated without instant destruction or, at least, stop-page. All the English authorities on plumbing, while speaking of the inside work and recommending it, fall back on the outside work as the style which, after all, seems best suited to the demanda of the people. The English plumber still does a great deal of lead work which in America has been superseded by materials obtained from the manufacturers ready for use.

Lead trap making is, in America, a thing of the past. Even the bottle trap is now a commercial article, and there is nothing remaining that needs to be made in the shop. Service boxes and drip trays are no longer made of lead, so that the modern American plumber has little to do in general plumbing work beyond bending and fitting pipe and making safes. In the better class of work even safe making is disappearing and water tight floors are taking its place. It is not an unheard of thing to hind first class jobs in that country where not 5 pounds of lead have been employed on the whole of the plumbing

work.

In Americs, as in England, gas fitting is recognized, and has been for many years a legitimate part of the plumber's business. In England the union of gas fitting and plumbing seems to go back to the very beginning of the art of conducting gas pipes, and the continued use of the so-called "composition" pipe, which is a bendable pipe like lead, makes it a very proper branch of the trade. In America, on the other hand, the plumber has taken to the use of iron, brass and other hard metal pipes to such an extent that he has to have his shop fitted with most of the tools for handling wrought iron pipe. Hence he naturally combines gas fitting with wrought iron pipe work as a proper, legitimate branch of his business.

On the other side of the water there is a constant advance in the styles and manufacture of plumbing goods of all kinds. There is nothing used by the plumber, from a joint for lead pipe to a complete set of bathroom fixtures, that he cannot buy ready made. The work

is becoming more and more a trade in which science and the ability to set up ready made fixtures and ready jointed pipe is more essential than skill in working lead. The schemes of plumbing and drainage made uccessary by their tremendous buildings are of a character to call for scientific knowledge of the highest class, but the manual skill needed beyond that of making a perfect screw or calked joint does not seem to be called for. Job after job of fine plumbing work is turned out, and the master plumber will tell you that he did not use a pound of lead. It requires very little thought, therefore, to see that the tendency of the plumbing work in the United States is dia metrically opposite to that of Great Britain, and it remains to be seen whether in the future the lines of advancement are to be still further diverging or in common.

## Springfield, Mass., Trade School.

A trade school has been started at Springfield, Mass., as a department of the Christian Industrial and Technical School, founded by the Rev. David Allen Reed. This department is under the superintendency of L. P. Strong, and comprises classes in five different trades, in which instruction is given by competent master workmen. The class in wood carving is taught by J. Desoe and has six pupils. There are six pupils in the carpentry class, taught by Chas. McGregory. In the bricklaying there are seven pupils under the charge of Lewis Hunt, and Frank Steel has six pupils in a sign painting class. Our New England readers have an opportunity of receiving instruction in plumbing from F. M. Tower, the Plumbing Inspector of Springfield, and this class already has 14 scholars, about half being helpers in the local plumbing shops. Some increase in attendance is expected at the plumbing lectures, which have been prepared with some care, and are said to be exhaustive in their treatment of the practice and theory of plumbing. The tuition fee for the classes is \$15, except the plumbing class, which is \$14. The classes opened on Monday night, and will run three nights a week until April. This is the first year for this school, and every effort will be made to advance the pupils, so that in future the school will have a larger attendance, and if possible support a day class, for which some demand has been found.

#### TRAPS AND VENTS.

A NEW PROJECT for the sanitation of the sewers of the city of Mexico calls for the building of some 25 windmills in different parts of the city at a cost of \$25,000. These windmills will rotate paddle wheels in the sewers and quicken the current to 1 meter a second.

A CERTAIN MR TUER, who resides in London, has been much agitated over the question of odors in a nearby district, and under date of October 16 of this year he sent the following announcement respecting the had smells to one of our foreign contemporaries: "Whereas some evil disposed stinks,

emanating at irregular intervals from the Lord knows where, intrude themselves into the nostrils of the unfortunate devils whom business daily calls together in Leadenhall street and its neighborhood. And whereas the writer hereof and his neighbors are often sickened unto death thereby, information, in writing only, as to the responsible concocter of these villainous stinks will be received by Messrs, Carr and Martin, solicitors, 11 and 12 Great Tower street, E. C., or of the may aging director of the Leadenhall Press, Limited, 50 L. adenhall street, E. C.

John M. Thompson and WM H. Allen, who have conducted a plumbing and tinsmithing business, at Washington, Pa., under the firm name of Thompson & Allen, have dissolved partnership. Mr. Thompson will continue business at the old stand.

COLLMAN & WESCOTT, Fair Haven, Vt., quarriers and manufacturers of slate. are offering a line of wash trays in three regular sizes and any shape or slze as ordered. They state that these tubs are made of the very best quality of slate obtainable, and are grooved and put tegether with bolts and insoluble cement.

The following story comes all the way from Haverhill, Mass. Scene: Stove and plumbing establishment. Exter agricultural looking individual who wants somebody sent out of town to put a faucet in a pipe. A plumber with full kit is started off and arriving finds that the job needing attention is putting a new damper in a stove pipe. Exit plumber disgusted. Bill, \$8.

THE WHITAKER SUPPLY COMPANY, Kokomo, Ind., a concern manufacturing plumbers' brass goods, have, after long litigation, shaken off a receivership and, it is reported, are doing a fair business.

THE MASTER PLUMBERS' ASSOCIATIONS of Connecticut, are arranging a State Association with the view of urging the passage of a plumbers' law. The journeymen plumbers will be asked to join the Masters' Association in getting the bill through the Legislature.

IT IS REPORTED that the plumbers of Minneapolis, Minn., will continue to work at old wages, owing to scarcity of work.

The Master Plumbers of Mont-Real and Vicinity evidently mean ousiness. At their last general meeting a decision was reached to apply to the Parliament of the Province of Quebco for an act of incorporation. Legislation, a Canadian correspondent informs us, costs money in Canada as well as in the United States, and the amount necessary, \$350, was subscribed instanter. The Master Plumbers' Association of Montreal and Vicinity show by this liberal action that they intend to continue in existence.

SMALL BROTHERS are erecting a building on Broadway, Everett, Mass., to be used as a plumbing shop.

F. A. McCaulay, Huntington, Ind., has purchased the plumbing stock formerly owned by Buchanan & McCaulay and will continue the plumbing business at the corner of Market and Warren streets.

THE FAIR HAVEN MARBLE & MARBLEIZED SLATE COMPANY, Fair Haven, Vt., publish an illustrated circular of some of the slate goods of their manufacture. One of them relates to kitchen sinks and shows sinks in different styles.

Attention is also directed to laundry tubs, marbleized state shelves, slate washstand tops and white marble work; likewise slatestone, tile floors and wall slates. Illustrations are given, together with tables of sizes and price-lists and descriptions of the goods.

GRORGE BOOTH, the inventor of the weil-known Steel Clad bathtub and the president of the Steel Bath Mfg. Company, Detroit, Mich., recently had a disagreesble experience, due to the overzealous action of a United States Marshal anxious to enforce the law against foreign labor. Mr. Booth is also the head of a manufactory of tubs at Toronto, Canada. While on a recent visit to Detrott, as he was about to leave his hotel late Saturday night, ho was accosted by a United States Marshal who politely invited him to the Commissioner's office. On striving there it appeared that the transaction was a case of arrest on a charge of importing foreign labor, and had Mr. Booth been a poor man or unable to procure bail he would have been put in the common jail to await trial. Bail was promptly furnished, however, but numerous witnessses had to be procured and lawyers paid. In introducing and establishing the new industry in the United States Mr. Booth had found it desirable to bring an expert mechanic with him to set up the requisite machinery, but as this is permitted under the act he was released after considerable delay without having the matter brought to trial.

SMITH STANNARD, 17 Harrison avenue, Springfield, Mass., makes a fine display of gas and electric lighting fixtures, and has an attractive line of wood mantels, art tile grates, fire dogs and fire place furnishings.

Donahue Bros., 9 Pynchon street, Springfield, Mass., have a well kept sample room showing a Faultless and an All Right boiler, a line of modern closets and an enameled iron and steel clad bath. They have been busy all through the year, and are now engaged in completing some heating and plumbing contracts.

THE NEW ENGLAND PLUMBING COMPANY occupy three floors of a large building at 91 and 93 Dwight street, Springfield, Mass. They carry a large line of soil pipe and fittings, lead and fron pipe, gas and atesm fitters' supplies, hesides a line of sanitary earthenware in closets and lavatories. In their ahowroom they display French and Roman enameled iron baths and a variety of fine plumbing fixtures.

W. S. Werster of Cszenovia, N. Y., has started in the plumbing business, at Montgomery, Als.

OLIVER & HOWLAND, 17 Hampden atreet, Springfield, Mass., are plumbers with a shop equipped for pipe cutting and threading by machinery. They also have a well arranged office and give personal attention to the details of their business.

- II. O. Sprague & Son, Westfield, Mass., carry a large stock of pipe and fittings and have machinery for cutting and threading pipe up to 8 inches in dismeter. They do a general plumbing business, and have a large sheet iron shop where they turn out some fine cornice work. They use both the Economy and Bay State furnaces in their heating contracts besides doing steam and hot water work in which Mills, Mercer and Cottage boilers are used.
- S. W. & A. B. LEE, Northampton, Mass., do a plumbing, tinning and heating business, and carry a large line of

brass supplies. They have a steam pipe cutting plant and use steam from the same boiler for heating their store, in which they display a fine variety of stores.

THE ALRERENE STONE COMPANY, 219 Lake street, Chicago, are 10 turnish laundry sinks for the 24-flst building of M. Press, Wabash avenue and Fortyfourth street.

A BOSTON DAILY PAPER gives an account of one whom they describe as the oldest plumber now in service at the trade. This honorable title refers to John E. McVey, 201 Broadway, South Boston, Mass., who is a little more than 66 years old and has been a plumber for 50 years. Mr. McVey began to learn the plumbing trade on May 11, 1844, which was before Boston had a wster supply, and when he hegan work the plumbers made most of their own material, lead pipe being made from sheet lead, and traps, bends, &c., being home manufactured. In addition to plumbing Mr. McVey helped to put in many of the first hot water boilers. He is a very much traveled plumber, having been nearly around the world and in 56 English cities, in many of which he worked. In Manchester, England, in 1859, he plumbed the house of Lord Macbeth in the American style. For two years he worked in Cubs putting in gas works. He also worked on plumbing at the Capitol at Washington and did plumbing for President Millard Filimore. He tella an interesting story of Chicago, where he worked in 1857, of an offer made him of 6 acres of land on Michigan avenue for \$75, which he didn't take, as he thought it was an outrageous figure to pay. Mr. MeV served in the army from 1861 to 1865. Mr. McVey

EAMES & LEE, Northsmpton, Mass., are plumbers who believe in organization rather than demoralization. They also do a large tinning and heating business in hot air, hot water and steam.

FRANK S. DIBBLE, Northampton, Mass., is about again, after a slight illness, looking after his plumbing and tinning business.

WHITCOMB, KIRKHAM & HAZEN, Springheid, Mass., make a fine display of stoves and ranges in addition to doing plumbing, ateam heating and sheet metal work.

- H. M. BREWSTER of the Stebbins Mfg. Co., Brightwood, Mass., visited the trade in New York this week in the interest of their line of bibbs, basin cocks, &c.
- F. L. CRAM of the Perfection Clean Out Company, Haverhill, Mass., was showing his soil pipe specialties to the plumbers of Springfield, Mass., on Wednesday.
- F. P. Hype talked tin plate and plumbers' supplies to the plumbers of Eastern Massachusetts this week in the interest of C. S. Mersick & Co., New Haven, Conn.

The L. Wolff Mfo Company, 93 West Lake street, Chicago, have just issued Supplement No. 3 to their Catalogne B, advance edition. The supplement consists of 32 pages of the same general style as the catalogue, being printed equally well and beautifully illustrated. It treats mainly of Wolff's wash out water closet ranges, enameled iron layatories and urinal stalls. The fixtures shown are especially well adapted to Government work and public buildings, schools, &c. The closet ranges are shown with and without par-

titions between the seats. The partitions are made of galvanized cast iron. Double ranges, with a row of seats on each side, are made with galvanized cast iron partitions and backs. In these ranges the sests are all hinged with heavy brass hinges and are made of cabinet finished cherry. The wash down pipes are made of perforated brass, the flush pipes are galvanized and the tanks are automatic and copper lined. The sec-The sectional lavatories are made in two sizes, and include fine enameled iron combined slabs and bowls with oval basin, patent overflow and improved overflow strainer, soap cup and two nickel plated Doherty self closing faucets for each slab. These lavatories are furnished either with bronzed iron brackets or bronzed iron legs. An entirely new feature, not heretofore at-tempted in enameled ware, is the shape of the basin, the arrangement of the soap cup, which drains into the basin, and the general design of the slab, which has a raised edge similar to countersunk marble slabs. Another design is shown with square basins. Another form of lavatory is a cast iron sectional wash sink having three sections. Single lavatories are shown in a number of styles. Urinsl stalls comprise marble stalls and slate stalls in various sizes and styles. The remainder of the catslogue treats of traps and fittings.

THE STEHBINS MIG. COMPANY, Brightwood, Mass., are finding a good sale for their Stebbins Special brass goods, which are warrented. They make a varied line of compression bibbs and faucets, and claim special merits for their self closing basin cock. Their works are conveniently located on the railroad and a visit to their foundry, core shop, machine shop, polishing and plating departments conveys an impression of careful workmanship and reliable goods.

THE HOGAN MFG. COMPANY, Hartford, Conn., sre marketing a new water closet flush tank, which is noiseless and works under all pressures of water.

C. HERPICH New Haven, Conn., is erecting a block on Congress avenue, near Ward street, in which he will fit up a store for his plumbing and stove business.

THE PLUMBING FIRM of Beh & Tourtelotte, Middletown, Conn., have dissolved.

The Birkery Mfg. Company, Hartford, Conn., have been running full time this year and the popularity of their high pressure bail cock has made it necessary to increase their force for the last two weeks. Their ball cocks are said to have given the best satisfaction in cities where a high water pressure is carried, and where the varying pressure that results from pumping stations is met. These cocks are made as large as 3 inches for the inlet and discharge and work with so little power that an extra large float is unnecessary.

The Government crop report for the month of November makes the average yield of corn, per acre, 19.7 bushels, which is about 1½ bushels above the yield estimated under the figures for October. This is the lowest yield in 13 years—that of 1881 standing at 18.6 bushels per acre. Last year the average yield was 22.5 bushels, on a much larger acreage. The cotton returns show an improvement as compared with those of last month, 191.7 pounds per acre being the indicated average yield for the entire cotton beit.

### HEATING & PLUMBING.

#### NEW WORK AND CONTRACTS.

LYNCH & RICHARDSON, Middleton, N. H., have been awarded the contract for heating the new Town Building and will use for the purpose two Gurney steam boilers.

THE BANGOR HOSPITAL will be equipped with a one-pipe system of steam heating by Babb, Witham & Kelley, Bangor, Maine.

AMONG the contracts recently taken by the Hub Plumbing, Heating & Stove Company, Clinton, Mass., are the heating for the Bergman Pharmacy, William G. Wilder's residence, L. H. Felton's residence at Bolton; heating and plumbing in the McIntyre Block, heating and plumbing in the Deitzman Block and the Primary School Building in Northborough; also a residence in Northborough and a wind mill plant in Boyleston.

THE BAKER & SMITH COMPANY, 193-197 Van Buren street, Chicago, are to place an Ideal hot water boiler and necessary radiation for heating the residence of Thomas Nicholson, 3344 Ver non avenue.

THE PAWTUCKET STEAM & GAS PIPE COMPANY, Pawtucket, R. I., are heating the new State Armory, Pawtucket, and the new Town Hall, at Cumberland, and a number of other buildings, using several carloads of Exeter ornsmental radiators.

PLANS have been prepared for a new block for F. L Leighton & Co., hardware dealers, Wallington, Conn., which will have a tin roof and be heated with steam.

P. F. CONNELLY, New Haven, Conn., is doing the plumbing in a new house being built on Arch street.

THE FOSKETT & BISHOP COMPANY, New Haven, Conn., have many large contracts on hand, among them being the equipment of F. M. Brown & Co.'s entire building with automatic sprinklers. They are also changing the heating system at the Candee Rubber Works.

M. J. Daly, Waterbury, Conn., is putting a Hopson & Chapin heating system in George M. Woodruff's house, Litchfield. He has also been awarded the contract for heating F. B. Rice's new building, at Waterbury.

METZ BROTHERS, 107 Twenty-second street, Chicago, are to install a hot water heating plant in the residence of J. F. Menson, 712 Washington boulevard.

F. COOGESHALL, Providence, R. I., is installing the heating apparatus in the new First Methodist Episcopal Church, at Pawtucket; in Mrs. Hartshorn's large residence, at Newport, and several other residences, using Exeter sectional boilers and radiators.

EDWARD S. HANKS, 58 Harrison avenue, Springfield, Mass., makes a specialty of plumbing work, and in addition to fitting some large business blocks with the upper floors as apartment houses, he has done the work in 15 fine residences and 50 of a less pretentious character.

W. M. COOLIDGE, 88 Plymouth place, Chicago, has the contract for the plumbing, gas fitting and sewerage in the Post Office Building at Cedar Rapids, Iowa.

The Phillips Meg. Company, Springfield, Mass., have the following contracts in course of completion: They are doing \$10,000 worth of plumbing and heating in the new Park Block, at Westfield, using exhaust steam. They used two Mills steam boilers in the Y. M. C. A. Building and are using horizontal tubular steam boilers in the parish house of the Memorial Church and in Worthy's Hotel.

J. B. FARNSWORTH has secured the contract to do the plumbing on Albert E. Leighton's new house on Leighton avenue, Clinton, Mass.

A CONTRACT to heat with hot water the new Roman Catholic Theological Seminary, on Quinpool road, Hallfax, N. S., has been awarded Power & Co. The sum involved exceeds \$4000.

THE THEO. JACOBS COMPANY, 72-74 Market street, Chicago, are to place a not water heating plant in the residence of Wm Best, 4320 Drexel boulevard.

GEO. L. WINTER, Southbridge, Mass., has been awarded the contract for heating the new engine house at Globe Village and will put in one of the Gurney steam heaters, for which he has taken the agency.

The contract for the steam and plumbing work of Bell Bros.' new overall factory has been awarded to Mullen Bros., Dubuque, Iowa.

A STEAM HEATING PLANT is to be installed in the new apartment house being built for J. W. Hallahan at Twelfth and Walnut streets, Philadelphia. A steam heating plant is also to be put up in the church at Twenty seventh and Wharton streets. Vallee Bros. & Co. are also to have a steam heating plant introduced in the five-story building 617-619 Arch street

THE ALCOCK PLUMBING COMPANY, 102 Twenty-second street, Chicago, are to do the plumbing, gas fitting and sewerage in the residence of C. E. Peterson, 4929 Cottage Grove avenue.

SETMAN BHOS, proprietors of the American House, have placed a contract with Howe Bros. of Canton for heating the house with steam. The system to be used is the Pease Economy all steam heating system.

A NEW STEAM HEATING PLANT, to cost about \$10,000, is to be introduced into the Bartram House, at Thirty third and Woodland avenue, Philadelphia, Pa. A. Segal of 305 Drexel Building is the contractor. Another heating plant is to be installed in the parish building of the Church of the Incarnation, at Broad and Jefferson streets, by Contractor Frank R. Watson.

WORKMEN are now engaged in putting steam pipes in the D., L. & W. round house at Binghamton, N. Y. The round house has 12 plts, and in each of these ten pipes will be arranged along the sides. The pipes will be attached to the car heater on the locomotive. In all there will be over 7000 feet in use.

- J H. DEVENEY, 2306 Cottage Grove avenue, Chicago, has the contract for the plumbing, gas fitting and sewerage in the residence of J. Rosenberg, Michigan avenue near Thirty eighth atreet.
- J. B. FARNSWORTH, Clinton, Mass., has received the contract to furnish the plumbing for the State Industrial School's new building at Lancaster.
- M. H. Haves, Lee, Mass., is putting steam heating apparatus in the Gleaner Block.

E. Baggor, 169-171 Adams streets Chicago, has secured the contract for the plumbing, gas fitting and sewerage in the residence of K. A. Sprague, 2636 Prairie avenue.

The John Davis Company, 69-79 Michigan street, Chicago, are to furnish a steam heating plant for the new Court House and jail at Waukegan. Ill. The Champlon Iron Works of Keuton, Ohio, do the iron work.

Punyis & Rockway, 215 Fifth avenue, Chicago, have the contract for steam heating in the Eagle Grove Syndicate Building, Eagle Grove, lowa.

J. J. Wade & Son, 276 Dearborn street, Chicago, have the contract for the plumbing, gas fitting and sewerage in the Horse and Carriage Repository, Wabash avenue and Sixteenth street. The Wade system of sewerage will be used.

THE HEATING AND PLUMBING CONTRACTS that the John B. Smith Company, Lewiston, Maine, have on hand include work on the Masonic Temple, Augusta; two residences at Brunswick, two residences at Lisbon Falls and other houses at Sabattus, and the Doyle Block and the People's Savings Bank, Lewiston.

RUFE BROTHERS Doylestown, Pa., are engaged in furnishing St John's Catholic Church, at Manayunk, with ateam heating apparatus.

C. W. TALCOTT, Woonsocket, R. I., is heating a large school house, using Exeter radiators. J. F. Mulvey of the same place is heating the Park Avenue School, using Exeter radiators. Among other places where these radiators have recently been used are the Odd Fellows' Block and the Somersworth Hotel, Somersworth, N. H., and the school house at Saco, Maine. The last contracts were taken by Willard E. Paul of Portsmouth, N. H.

ADOLPH SEGAL has taken out a permit for putting a steam heating plant to cost \$10,000 in the Bartram apartment house, Philadelphia.

THE BOARD OF SUPERVISORS of San Francisco have approved the system of ventilated flush closets presented by Walter Morgan & Co., for use at the Douglass School Building.

DWYER & Co., St. Paul, Minn., were awarded the contract for the plumbing and flush closets in the Garfield, Scheffer, Jackson and Adams schools of that city.

MEYER BROTHERS, 4146 Cottage Grove avenue, Chicago, have the contract for warm air heating in the residence of M. Rose, 6500 Drexel boulevard.

James Ahern. Hartford, Conn., has the contract for plumbing and gas fiting in the armory of the First Regiment of the Connecticut State militia. He is doing the plumbing and installing a Pequot hot water heater in the new residence of Amos Whitney.

THE BOSWORTH HEATING & SUPPLY COMPANY, Hartford, Conn., recently completed the heating plant in the factory building of the Atwood Faience Company, at Parkville, Conn.

Thomas Oakes, Hartford, Conn., is installing a hot water heating plant, using a Volunteer boiler, in the residence of Alex. Watson, and is doing the plumbing in several new houses in the city.

THE COWLES COUCH COMPANY, Hartford, Conn., are using a Howard heater in the residence of Isaac Bragaw, and are doing the plumbing in a six-tenement block for Mrs. A. Allen.

## Melting Tin Plate Scrap in a Cupola.\*

BY DR. EDWARD KIRK.

Tin plate scrap is melted in the ordinary foundry cupola the same as cast iron scrap, but more fuel is required to melt it. The best results are obtained with 1 pound of coke to from 3 to 4 pounds of scrap and a mild or light blast. Various ways of preparing the scrap for charging, such as hammering or pressing it into ingots and forming it into compact balls, have been tried. but as good results are obtained by charging it in bulk, and it is generally added in this way. The charges are made of about the same weight as charges of iron in a cupola of similar size, but more fuel is added. The scrap when first put in the cupola is very bulky and takes up a good deal of room, but when heated it settles down into a compact mass, and takes up very little more space than a charge of cast iron scrap. Tin plate scrap settles rapidly, but melts slower than cast iron scrap or pig.

Numerous attempts have been made to recover the tin deposited upon the iron by heating the scrap in various ways to a temperature at which tin melts, but the coating of tin is so light it will not flow from the iron. All such attempts to recover it have proved failures. The iron, or rather steel, which is coated with tin is a very soft and tough material, but when melted the tin alloys with it, and the metal produced is very hard and brittle. The molten metal from this scrap has very little life, chills rapidly in the apout, ladlea or molds, must be at a white heat when drawn from the cupols, and must be poured as quickly as possible. not melted extremely hot the metal expands or swells in cooling to so great an extent as to tear a sand mold to pieces or break an iron mold where it cannot escape. When the metal is melted very hot this expansion does not take place to so great an extent, and a sand or iron mold may be used for any work into which it is to he cast.

The molten metal is more susceptible to the effect of moisture than iron, and is instantly thrown out of a mold when sand is worked too wet and cannot be made to lay in it. The sand must, therefore, be worked as dry as possible. The metal is very hard and brittle and only fit for sash and other weights, and even these when light and long must be handled with care to avoid breaking. The weights when rough cannot be chipped or filed smooth and sash weights made of this metal are generally sold at a less price than tron weights, for when rough they wear out the wooden box in which they are hung very quickly, and builders dislike to use them. A foundryman who recently had a contract from the Government for a number of weights of several tons each, to be used for holding buoys in the ocean, made them from tin plate scrap. When cast they were so rough that he remarked it was a good thing they were to be sunk in the mud under the ocean, for they were not fit to be

In a number of experiments I made in melting this acrap I found I could produce a gray metal from it about as hard as No. 3 pig iron, by melting it with a large per cent. of fuel and a very light blast. But the metal was very rotten and had little if any more strength than when white. I tried a number of experiments to increase Its strength, but in none of them did I succeed to any Melting it very hot and running it into piga and remelting the pig improved the strength in some degree, but this was expensive and the results did not justify the expense. I also made a number of tests to learn the amount of metal lost in melting this scrap, and found with a light or proper amount of blast to do good melting there was practically no loss. With a strong blast the loss was heavier, and in one heat, with a very heavy blast, I lost 10 per cent. of the metal charged. The metal from this heat was a little stronger and also a little harder, which was probably due to oxidation of the tin and iron by the strong blast before melting. In melting old roofing tln, rusted scrap and old cans the loss in melting varied from 10 to 25 per cent., which was probably due to rust, paint and solder used in putting the work together.

Tin acts as a flux when melted with iron and renders it more fusible. Scrap from which the tin has been removed by acids to recover the tin or by the process employed in the manufacture of chloride of tin is more difficult to melt in a cupola than when covered with tin, and more fuel and time are required to melt it, but a better grade of iron is produced from it. Scrap of this sort should be melted soon after the tin is removed from it, for it rusts very quickly, and when rusted to any extent produces nothing but slag when melted.

Scrap sheet iron is more difficult to melt than tinned acrap and is seldom melted in a cupola, for better prices are paid for it by rolling mills than foundrymen can afford to offer.

Galvanized sheet iron scrap cannot be melted at all in a cupola in large quantitica, for the zinc used in galvanizing it, acting like the zinc solution used in the Babcock fire extinguishers, cools the fire in the cupola to a marked degree. When melting tinned scrap any galvanized acrap that has been mixed with it must be carefully picked out, for even in small quantities it lowers the heat in a cupola to such an extent that the metal from the tinned acrap cannot be used, and must be poured in the pig bed if it runs from the cupola at all. There are a number of waya of doctoring the metal from tin plate acrap when it melta or flows badly by the use of gas and oil, retort carbon, &c., but they do not improve the quality of the metal to any extent, and it is very doubtful if they increase its melting or flowing properties.

A cupola of any suitable size can be employed for melting tin plate scrap and an entire heat of the scrap may be melted alone or it may be mixed with cast iron acrap or pig and melted, or again, it may be melted alone directly after a heat of iron. It is a common practice in many small foundries to melt this acrap in the cupola for sash and other weights directly after melting a heat of iron for soft castings. An extra heavy charge of fuel is placed upon the last charge of iron to check the melting for a few minutes by preventing the scrap settling into the melting zone and the soft iron is all melted and drawn off before the scrap begins to come down. In melting long heats of this scrap it is necessary to flux the cupola with limeatone or shells in sufficient quantitles to produce a fluid lag. The flux should be put in on the

first charge of acrap in very small cupolas and on the second or third charge in large cupolas, and on each charge through the heat after. The slag hole through the heat after. should be placed at the lowest point consistent with the amount of molten metal to be collected in the cupola at one time, and opened as soon as the first charge of scrap, upon which flux is placed, has melted. The slag hole may be opened and closed from time to time, but it is better not to make the hole too large and leave it open through The flow of slag then reguthe heat. lates itself and there is no danger of it running into the tuyeres. In melting a few hundredweight of this acrap in a cupola, after melting a small heat of iron, it is not necessary to charge flux in sufficient quantities to produce a fluid alag to be tapped, unless the cupola is very small and shows signs of bunging up. In this case flux must be charged with the iron and slag tapped early in the heat, to keep the cupola in condition to melt the acrap after the iron is melted.

When constructing a cupola expressly for melting tin plate scrap the charging door or opening should be placed about 6 inches above the scaffold floor so the acrap may be dumped in from a barrow and save handling it a second time with forks. The charging door should be much larger than in a cupola of the same diameter for melting iron and should be not less than 3 or 4 feet aquare in any case, and for cupolas of very large inside diameter the opening should be equal to one half or threefifths the diameter of the shell and 4 or 5 feet high. The hight of the door above the bottom depends upon the diameter of the cupols. In large cupolaa it should be placed 18 or 20 feet above the bottom and in smaller cupolas as high as posible without danger of the stock hanging up in the cupola before settling into the melting zone. The lining material must be carefully selected, for a poor fire brick will not last at the melting zone through one long heat; in fact, none of the fire brick lasts very long at this point and it is generally necessary to put in a few new ones after each heat. High silicon brick is said to lest better then any other is said to last better than any other brick, but some of the native stone linings which I have described last longer in melting this scrap than any of the fire brick and they are generally used for lining cupolas for this work. coat of melting tin plate acrap in a cupola is from \$1 to \$2 per ton more than the coat of melting iron. The amount of profit in melting this acrap for weights, &c. depends, like all other foundry business, upon the location and size of the plant and the management of the business, but at the present time, even under favorable circumstances, the profits are small.

#### Barker's Chimney Top Ventilator.

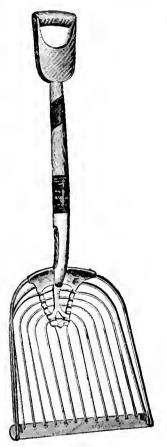
In The Metal Worker of October 27 we published in reply to a correspondent a method of cutting the patterns of a chimney top. We have since learned that the chimney top illustasted is Barker's chimney top ventilator, patented October 28, 1879, and that G. E. Barker, St. Lawrence, S. Dak., and H. W. Barker, 7820 Wallace street, Chicago, Ill., issue licenses to manufacture under royalty. When the article was published we were unaware that the device was controlled by patents. We take pleasure now in correcting the omission.

<sup>\*</sup>Copyrighted, 1894, by Edward Kirk.

# THE RETAIL STORE.

#### Improved Wire Scoop,

The cut here shown represents a scoop manufactured by the Cleveland Lock Company, Cleveland, Ohio. It is explained that the secop is of unusually large size; that it has a socket in which the handle fits; that it is made entirely without rivets, of spring steel stock, making a light, rigid and strong tool; that it is finely galvanized and attractively finished. The manufact-



Improved Wire Scoop.

urers state that the scoop has an absolutely safe edge, and that It may be used by grocers and shippers for handling apples, pears, oranges, peaches, &c., without danger of bruising or injuring the fruit. The scoop is recommended by the makers for use by fish dealers to handle fish rapidly; and when provided with a long D handle for ice men, for removing slush ice when gathering the ice crop.

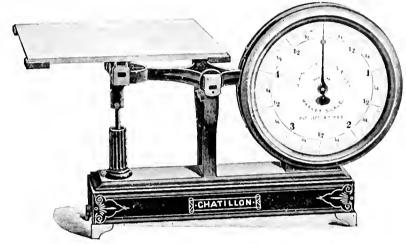
#### Even Balance Market Scale.

John Chatillon & Sons, 85-93 Cliff street, New York, have just put on the market an even balance scale, as here shown. This is introduced as an exceptionally sensitive counter scale, designed largely for market uses. One of its prime characteristics consists in its being fitted with agate bearings, as fine watches are ruby jeweled, to reduce friction and minimize wear. The double dial is 8 inches in diameter, with 10-inch nickeled sash, and so arranged that the pointer can be seen equally well

by both buyer and seller. The scale has a marble plate 11 inches square, the extreme length of the scale being 23 inches. The body of the seale is finished in maroon and decorated. The scale can be obtained with dlals indi-



THE BEDFOND HARDWARE COM-PANY have opened for business at Bedford, Va. The new concern, which is under the management of R. H.



Market Scale with Agate Bearings.

cating 5, 10, 20 and 40 pounds at one revolution, by  $\frac{1}{3}$ , 1, 2 and 4 ounces respectively, at a uniform price.

#### Streeter's Sensible Ash Sifter.

The illustrations here given arc of an ash sifter offered by N. R. Strecter & Co., Groton, N. Y.; New York office, W. H. Jacobus, 90 Chambers atreet. In operation the ashes are emptled into the hopper, the lid closed and the ratchet bar drawn. It is explained that in a moment the coal will be found in a drawer at the bottom perfectly separated from the sahes, and that the ashes are retained in the hopper at the top of the sieve and are allowed to go through the sifter at the will of the operator. The manufacturers state that as the coal and ashes both run to closed receptacles



Fig. 1.-Streeter's Sensible Ash Sifter.

there is no dust. The sifter will be made in both wood and steel, but the manufacturers state that only steel ones are at present ready for market. It is claimed that the steel sifter will last as long as the stove or range from which it gets its supply of ashes.

Thomas, will deal in hardware, stoves, tinware and house furnishing goods.

J. T. Dame has succeeded the firm of Dame & Francis in the stove and tinware business, at Salem, Va.

WM. M. ASHLEY, 27 Harrison avenuc, is introducing in Springfield, Mass., the

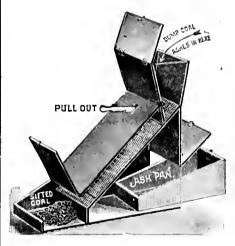


Fig. 2.-Sectional View of Ash Sifter.

new scorch proof asbestos cooking utensils of the Crown Specialty Company, 69 Beekman street, New York. The utensils are made of heavy tin, with an outer covering of copper and an asbestos lining between, which is said to be proof against scorching or burning. A sample is exhibited cut in two parts vertically, showing the construction.

Sprague & Moore, Westfield, Mass., are adding hardware and paints to their stove, heating and plumbing business. Their new store shows no little taste in the display of the goods.

#### Motor Cycles.

The Motor bicycle, shown in Fig. 1, and the Victoria cycle, shown in Fig. 2, are being introduced by the Motor Cycle Company, Cleveland, Ohio. The drlving mechanism of the former con-

It is an impossibility to run the machine until the passenger has taken his position in the saddle. The speed is varied at will by turning the throttle valve, and the machine stopped by closing the valve.

machine stopped by closing the valve.

Considered as a whole, the bicycle is designed and constructed with a

gines will outlast the best make of

bicycles.

The Victoria Motor cycle was built to supply a demand which a two-wheeled machine would not reach, and to take the place of a horse and carriage, seating two or three persons, side by side.



Fig. 1.—Motor Bicycle.

sists of two hot air engines—one on either side of the rear wheel—the crank connection being clearly indicated in the engraving, and the general arrangement being similar to a locomotive. The can in front of the operator carries the oil, which is conveyed through the frame of the machine to the cylinders of the engines, where it is mixed with air. Being

view to making it unusually strong and adapted to meet the requirements of all classes of riders and convenient to operate. The front wheels are 24 inches in diameter and the rear ones 22 inches, with 4 inch pneumatic tires, having a non-puncturing strip between the inner and outer cover. The surface presented to the ground when the machine is in operation is

The machine is low and casily entered-The machine is easily controlled, and any person of ordinary intelligence can run it. There is no expense except when in actual use, and which is but a few cents per day. Each machine is guaranteed by the manufacturers for one year. Arrangements are being made for space at the New York and Chicago bicycle exhibits, where it is understood

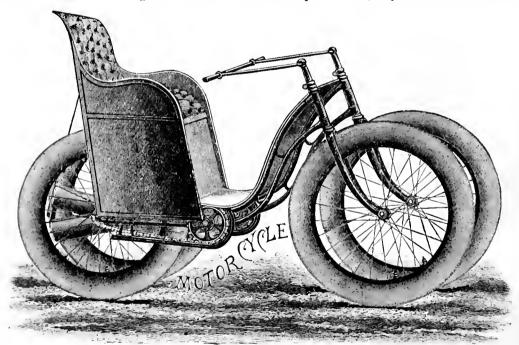


Fig. 2.- Victoria Motor Cycle.

ignited it expands the air and forces the pistons forward. Ordinarily, in engines of this type, a fly wheel is necessary to equal the load; in this case the passenger takes the place of the fly wheel, or, in other words, the velocity of the cycle and the passenger combined pull the engines over the center and compress the charge behind the piston.

about 5 inches in width, giving surface sufficient so that the machine can be ridden over mud, sand, dust, and over rough roads. It may be propelled by foot power if desired. The manufacturers claim that the machine may be run at any speed from 1 to 30 miles an hour, that it will climb hills, run against heavy winds, and that the en-

there will be machines, so that any on wishing to try them may do so.

Thomas Ellison, the well-known statistician of Liverpool is of the opinion that prices have certainly reached bottom the world over, and that their increase from now on will be sure and gradual.

Combination Heater and Cook Stove.

Edward Miller & Co., 10 and 12 College place, New York, are introducing

heater is designed for oil, having a font with a capacity of 4 quarts, to burn 12 hours. The extreme hight as a heater, with the drum, shown in Fig. 2 in posi-

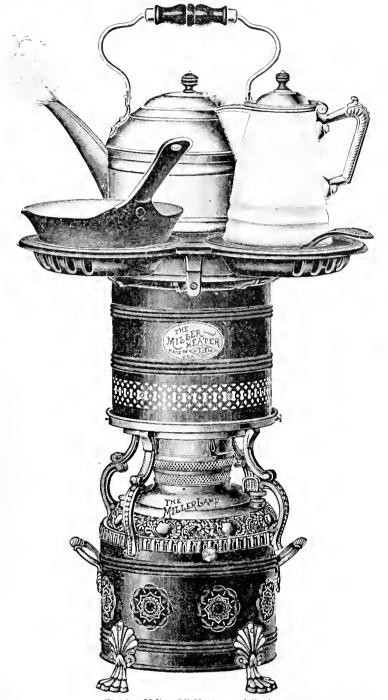


Fig. 1.-Miller Oil Heater and Cooker.



Fig. 2.—Sheet Iron Drum for Heater.

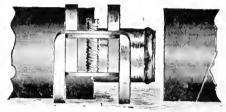
their Combination heather and cook stove, as shown in Figs. 1 and 2. This

tion, is 30½ inches and spread of feet 11¼ inches. The holder and drum are of Russia iron, with nickeled lamp and trimminga. For cooking the drum is removed and the cast iron extension top with three holes can be quickly placed in position. For roasting and baking Nos. 2 and 3 ovens are furnished. The point is made that all the weight of the cylinders and utensils reats solidly on the font and not on the burner. Each lamp is supplied with an extra flame spreader for illuminating purposes when not used as a heater.

THE E. E. SOUTHER IRON COMPANY, St. Louis, Mo., have just completed and are now ready to place on the market a new ash can. The can is made of heavy galvanized iron, hexagon shaped and corrugated. It is claimed by the manufacturers that it is impossible to dent this can by the roughest kind of usage, and that it is practically indestructible.

## Double Clinch Hose Band and Mender.

Clayton & Lambert Mfg. Company, Ypsilanti, Mich., are offering the hose band and mender illustrated in the accompanying cut. It consists of a mender tube of seamless brass, which is placed inside the hose, and a double metallic band with a brass set serew. One band and one tube is required for mending a hose. It is explained that the brass tube is easily inserted, giving a full opening for the water to flow through, and that it does not rust. The screw is attached to the band so as not to become detached, and the band can be removed and replaced as many times as desired. The screw, it is stated, is never set by rust, and that it is never detached or lost. It is pointed out that the owner can mend his own hose, and that a knife and screw driver are the only tools required for the operation. The manufacturers claim that the mender is water tight, durable, light, strong and easily put on, and that it may also be satisfactorily used for attaching couplings, nozzies and other The menders and bands hose fixtures.



Double Clinch Hose Band and Mender.

are made in  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$  and  $1\frac{1}{2}$  inch aizes. A sample and prices will be sent free by the manufacturers to inquirers.

#### Selling Stoves.

We have a sort of notion, says an English journal, that lronmongers don't push the stove business quite as well as they might do, and as indeed they ought to do. In regard to this subject we would venture to make one or two suggestions for the consideration of our readers. First and most important is the question of sdvertising. Stoves do not seem to be advertised to any great extent by ironmongers, as where any attempt is made in this direction the announcements are usually of the barest and most unsatisfactory kind conceivable. A mere statement that "we supply all the latest designs in stoves, grates, &c., la not enough to win business, and if the fact is worth announc-ing at all we make bold to suggest that it ought to be done in a more attractive manner. There's nothing on earth essier, and it is a marvel to us that more of our friends have not looked at the question in this light. Our idea is that when an ironmonger has made up his mind as so what stoves he intends to push, he should at once write and ask the manufacturers to loan him electros of a few nice designs. With these he should be able to get out an attractive circular which will show likely customers the sort of thing they can purchase at his shop. . . . Ironpurchase at his shop. . . . Iron-mongers should also make a special show of stoves, &c., and invite customers to inspect the very latest improvements. Enterprise pays in these times, and those who are not willing to go ahead will soon find themselves quite out of the running. As each season comes round the goods specially suited to it should be pushed with energy. Now is the season for stoves, and we hope our readers will determine to make the most of it.

#### Ideal Furnace Damper Clips.

Stover Mfg. Company, Freeport, Ill., are offering two styles of furnace damper clips, as here shown. The circular line is designed to represent the damper blade usually supplied by the tinner, which in the extension clip, Fig. 1, is riveted to leaves at opposite sides, and when completed is placed in the pipe in a similar manner to any

The manufacturers remark that the use of two leaves and two bearings is peculiar to the damper clips made by them, and that they have advantages over clips with but one bearing.

#### A Stove Day.

BY POINTER.

Reading the articles on "A Cooking arnival" and "A Thankagiving Carnival

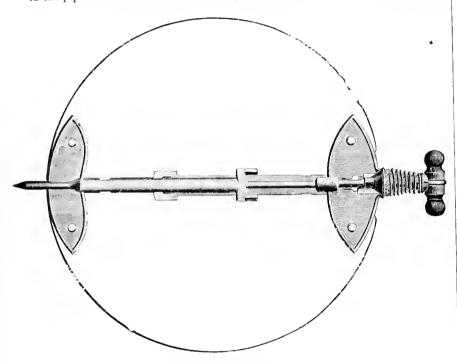


Fig. 1.-Ideal Extension Furnace Damper Clip No. 1.

ordinary stove pipe damper. It is explained that the extension feature permits of using one size clip for different sizes of dampers from 8 to 12 inches, at the same time retaining the rigid feature of a bar joining the two leaves of the clip together, and thus preventing the heat warping the blade out of shape. It is pointed out that two bearings are employed for properly supporting the damper in the pipe and that it is held in any desired position by the

Window" suggested to me that the stove dealers could be benefited by a stove day. Of course, every live dealer makes some show at the beginning of the season and then the attractions are bought and the sample rooms not being taken care of in the rush, a stove store is apt to be anything but inviting. In consequence the old shopkeepers hang

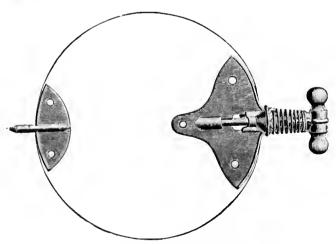


Fig. 2.-Ideal Furnace Damper Clip No. 2.

friction caused by the pressure of the apring on the collar which bears against the pipe. It is stated that the handle is easily and quickly removed and that the sharp point of the cllp is used for making holes in the pipe for the spindle to reat ln. The clip shown in Fig. 2 is similar to the one described, but it has no bar to join the two leaves together.

of the stock detract from the attractiveness of stoves that sold readily when the line was full. Toward the last of October it would be a good idea to arrange for a stove day, the sole object of which would be to get rid of old stock and to sell more of leading lines. The stoves, if possible, should be arranged opposite each other, one line having a muslin

streamer suspended over it, "The Good Old Fashioned Kind," and over the other "The Very Latest Up to Date."
Placards on the old stagers like "Tried and True," "Good as Gold," "Sure to Bake," "Easy on Fuel." "Heats Like Fire," printed on butchers' wrapping paper in red ink, would sort of freshen up the old soldiers.

Then you waut a salesman who don't know what the price is, but who is up on science and the comic almanac to make the people glad they came, and to make them want the stoves so badly that they must have them. The new stock will largely do its own placardstock will largely do its own placarding and talking, with the aid of the lithographs and clreulars sent with them. When you have planned what you intend to do, hang a whole sheet of stove pipe iron out in front of your place for a banner and fringe it with pie plates and cake tins riveted around the edgea. Have painted on it in big white letters, "We Celebrate Stove Day November 22. Our Show Will be Gay." Take that banner in as soon as the day is over. To make it a success an extra man may be needed to get things ready, to hang up the atreamer, to suspend your mottoes from it over the stoves. Some of the boys will be glad to earn a half dollar and have some fun driving around town in your business wagon with a transparency announcing your celebration and attracting attention by pounding on an old wash boiler with a atick and rattling sheets of iron and tin. Everything goes in these days but the old "chestnuts" and this is the season to market them.

THE ROCHESTER STAMPING WORKS, Rochester, N. Y., issue a catalogue for 1894-5 of the high grade specialties of their manufacture. The publication is an oblong pamphlet of small size, but contains within its covers much intereating information relating to copper and other sheet metal goods which they make. The first section concerns tea and range kettles, of which many different styles and sizes are illustrated and briefly described. Full tables of sizes and prices accompany the illustra-tions. The next division relates to tions. The next division relates to coffee and sauce pots, urns, chafing dishes, &c. Among the miscellaneous goods are cuspldors, water pails, oil and gasoline cans, dinner pails, elbows, &c. Wash boilers, trimmings, &c., are similarly described and illustrated at the end of the pamphlet.

At the third annual meeting of the Foundrymen's Association, held in Philadelphia November 7, the following officers were elected for the ensuing year: President, Francis Schumann; vice-president, P. D. Wanner; treasurer, Josiah Thompson; secretary, Howard Evans. Executive Committee, Walter Wood, chairman; Thos. Glover, Stanley G. Flagg, J., E. E. Brown and William Sauter.

The citizens of Niles, Ohio, are making a strong effort to attract new indus-tries to their town. The Board of Trade of Niles have acquired considerable land in the outskirts of the town, and are offering free sites to manufacturers, several of whom are said to consider the matter favorably.

The Texas Cotton Palace, at Waco, Texas, was formally opened on November 8.

# STOVE TRADE NOTES.

The Chicago Stove Trade.

The gasoline atove trade is again expanding. The tendency for some time had been toward concentration, and the business seemed to be drifting ateadily but surely into the hands of a very few large concerns who had gained special prominence in this line. But the field has been deemed sufficiently inviting to induce fresh ventures of capital, and the coming season will see several new concerns asking for a share of the vapor stove business. The smaller manufacturers are also arranging to take a more prominent position by increasing their facilities and enlarging their lines. Milwaukee is now attracting much attention by reason of the enterprise exhibited by Cresm City manufacturers. Our advertising columns last week and this week bear witness that a patent controversy of some importance has come up which will be of considerable interest to the makers of process stoves. Whatever the result of the controversy may be, Milwaukee will undoubtedly figure much more prominently in the vapor stove trade during the coming year than ever before.

The range trade has been quite a feature of fall husiness in this locality. According to the statements of numerous managers the proportion of ranges sold has been considerably larger than usual. The spring has heretofore been considered the range season, but if the tendency now shown continues the fall will hereafter take the lead in this respect. The movement can be helped still more if merchanta generally will heed the suggestion recently made in these columns to make the Thanksgiving season prominent in the minds of their customers as a time for "booming" cooking appllances. The idea is so eminently appropriate that it must strike favorably every one connected with the stove and house furnishing trades. A Thankagiving dinner, to be well prepared, should be cooked with the very best appliances. While on the subject of ranges, the fact deserves to be mentioned that the trade in steel ranges has shown vigorous growth this season. The character of the demand for this class of goods is shown by a bit of information imparted to the writer a few days since, but not in confidence. A prominent Western steel range manufacturer, in apologizing for not more promptly filling an order, stated that he was over 600 ranges behind on deliveries on contracts then on his books. The manufacturers of cast ranges are not asleep on this matter, as

many of them have also entered the | steel range trade, and with quite satisfactory results They are making innovations in finish which are quite pleasing to a large class of buyers, especially the substitution of ornamental cast fronts for the conventioual plain front of the old French or wrought Iron range.

The trade in heating stoves naturally showed a decline during the mild weather prevailing in the latter part of October and running into this month. At this time of the year much depends on the character of the weather, and the heating stove trade drags if people are of the impression that they may be able to get along without making any further investments in heating apparatus. It is needless to say that the sharp drop in temperature throughout the Northwest during the past week was regarded as a promising advance in the direction of better stove weather. The stove repair trade continues large, with a heavier demand than usual for parts of antiquated patterns, indicating the great economy now being practiced in making even very old atoves fulfill their functions for another season if possible. The repair business is one that does not always receive adequate attention, especially at the hands of the smaller foundries. Complaint is frequently heard that customers are kept waiting for their repairs for a week or more, because the pieces have to be made, whereas the foundry should always have a stock on hand and fill the order immediately. The repair trade is aufficiently profitable to make it worth systematic attention.

### The Open Fire Place, Past and Present.-II.

Coal as a Fucl.

It was not until the diminution of timber became appreciable that the prejudice against the use of coal as a fuel was overcome—a prejudice so atrong that Sir Gilbert Blane records a case in the reign of Edward I: a person was tried, convicted and exea person was tried, convicted and executed for burning coal within the city of London." The prejudice would lead one to suppose that the old fire places, notwithstanding the testimony of Hebrard, did smoke; but while our ancestors could tolerate an atmosphere impregnated with the smoke from wood, they entirely objected to one charged with coal smoke, which, if present stall, would be present in greater volume. The more general use of coal as a fuel must necessarily have had much to do with the alteration in the construction of the fire place. In the early form of grates for coal fuel they were probably general purposes if constructed on

only a few bars of iron bent into a oblong or semicircular form, and fixed in the wall or recess or niche. A reference to one occurs in an inventory bearing the date 1603: "A cradell of iron for the chimnye to burn sea cole with." It was called sea coal from the fact of its being imported to Lon-don by sea. Next the introduction and development of cast iron work, which da'es about the seventeenth century, would give opportunites for a totally different treatment, and it is with the development of this latter treatment that we are most concerned at the present time. From time to time there have been numerous attempts to economize the waste heat from the open fire place, by various elaborate arrangements of pipes, flues, air chambers, and other contrivances, commencing with the attempt of Savot in a fire place at the Louvre, where an air chamber was constructed beneath the hearth, and at the back of recess, which communicated with the apartment through two round openings made in the frieze of the mantel piece, the air for this being taken from the chamber instead of from outside. In other respects the idea does not appear to differ from modern inventions; but to attempt to give a history, however brief, of all these inventions would, in itself, be aufficient to form the subject for a series of papera, and as most of them appear to have been as costly as they were ineffectual, I do not propose to make further mention of them, but instead confine myself to the open fire place pure and simple.

#### Kinds of Fire Place.

Of these there are three kinds still in use auitable for the combustion of coal fuel. These are the dog grate, the hob grate, and the ordinary grate. For picturesque effects perhaps the dog grate is capable of producing the beat results, being the nearest approach to the old open hearths; but its practical value is not equal to the ordinary grate, as it is more extravagant in combustion, not generous proportionately in its warming powers, liable to smoke under provocation, and, finally, it must be conceded that a fire place in this form must distribute more dust than one that is more controlled; therefore I would recommend generally that the dog grate be used in the entrance hall or other apartment where it would be no great hardship to dispense with a fire if necessary. Next comes the hob grate, which seems to have been a favorite in the eighteenth century, but I do not see anything to recommend it. It is necessarily more expensive in construction. It has to be fitted, and being made in a material that is not altogether auitable for fitting, it is either expensive or badly made. Secondly, like the dog grate, it consumes out of proportion to the work it accomplishes; and, lastly, it has a similar liability to smoke under certain conditions. Its practical advantages are its hobs—advantages that may be supplied to any ordinary grate by the addition of a trivet. The ordinary grate is undoubtedly the best for

proper lines; there is still room for economizing generated heat, as it is only a small percentage that is utilized, but many improvements have taken place within the last few years, although most of these improvements were advocated a century ago. The most sound and practical ideas are not proof against fashion and unpractical economy; thus it is that what appears to be new in the open fire place is but the development of principles advanced a hundred years In determining the construction of a fire place, the first essential is a fire brick back and side cheeks, with no metal there at all; secondly, to use as little metal work in the construction of the fire place as possible; and, lastly, the most suitable form. Great lessons in this direction were taught by Count Rumford, whose writings date from 1796 to 1802, but have recently been republished. Among other improvements he advo-cated the reduction of the chimney throat and fire clay backs and sides, but these appear to have been recommended earlier by "Gauger" (Cardinal de Poug-Rumford objected to the nac, 1713). circular covings on the ground that they produced eddies or currents, which would be liable to cause the chimney to smoke, and laid down new rules for determining the best form. He further accidentally discovered the advantage of the lean over back, which has only lately been revived and advocated by many manufacturers as an entirely modern and original idea, although Pridgin Teale, who deserves our warmest thanks for being the means of its general revival, in his lecture to the Architectural Association in 1886 gives an extract from Rumford's writings explaining the accidental discovery of the great advan-tage of this form of construction. This ides of the lesn over back was one of the chief features of the so called Stevens grate, the semicircular iron grate that we were so familiar with 20 or 30 years But these were manufactured in iron instead of fire brick, and the throat was beneath the lean over instead of above, thus preventing the greatest force of hest from playing upon it, allow-ing it to escape instead of retaining it. Various forms of this grate were generally in use until 20 years ago, and, of course, some survived much later, and are even now made in cheaper forms. It recommends itself much to builders, because it practically fixes itself; but while it is supposed to be built on the lines advocated by Count Rumford, nothing can have been farther from the spirit of his teachings. I think it well bere to give a few extracts from his valuable writings. He says: "It is quite certain that the quantity of heat which goes off, combined with the smoke, vapor and heated air, is much more considerable, perhaps three or four times greater at least, than that which is sent off from the fire in rays, and yet small as the quantity is of this radiant heat it is the only part of the heat generated in combustion of the fuel burned in an open fire place which is ever employed or which can be em-ployed in heating a room," and "as it s the radiated heat alone which can be employed in heating a room it becomes an object of much importance to determine how the greatest quantity of it may be generated from the combus-tion of fuel." I have accepted his doctrine without dissent, because my paper is upon the open fire place in its simplest form; but other writers have condemned the foregoing as being likely to discourage experiment and the development of ideas for utilizing other than radiant heat.

#### The Fire Basket.

His plan for the fire basket was the same as now used. He laid down the rule that the sides should be built at an angle of not more than 135° with the back-that is, 45° with the front. This enables nearly the whole of the heat radiated from the cheeks or sides to pass elear of the actual fire place, instead of radiating to and fro, as it would do in cases where the basket is built with right angles. The angle for the checks is improved by Mr. Teale, who gives the angles 120° with the back and 60° with the front. These angles enable The angle for the cheeks most of the rays to escape the jambs, but only just so, thus sending them more into the corners of the room; but it is only fair to Rumford to add that he said they were not to exceed 135°. He condemned all iron backs for the fire basket on account of the great heat conducting power of iron, which wastes the heat and cools the fire by conveying it through the brick work, and ultimately to the open air outside. In its atesd he advocated the use of fire brick, and this, until his accidental discovery of the advantages of the lean over back, he built in a vertical form, condemning all forms of backs which less away from the fire. He first wrote: "It frequently happens that the iron backs of grates are not vertical, but inclined backward. Where the grates are wide and can be fitted up with fire brick, the inclination of the back will be of little consequence, since by making the fire brick in the form of a wedge, the front may be made perfectly vertical, the iron being hid in the solid work of the fire place. If the grate be too shallow to admit of any diminution, it will be best to take away the iron back entirely and cause the vertical back of the fire place to serve as the back to the grate." He subsequently wrote, after having had to deal with a chimney with a very thin well in front that it and a very thin wall in front, that in order to reduce the fire at the throat he had inclined the back forward. "I was surthe back forward. "I was surprised to find upon lighting the fire that it appeared to give out more heat into the room than any fire place I had ever constructed. This effect was quite unexpected; but the cause of it was too obvious not to be immediately discovered. The flame rising from the fire broke against the part of the back which sloped over the fire, and this part of the back being soon very much heated, and in consequence of its being very hot, and when the fire burned very bright it was frequently red bot. threw off into the room a great deal of radiant heat. It is not possible that this oblique surface could have been heated red hot merely by the radiant heat projected by the burning fuel, for other parts of the fire place nearer the fire, and better situated for receiving the radiant heat, were never found to be so much heated, and hence it appears that the combined heat in the currents of smoke and hot vapor which rises from an open fire may be at least in part stopped in its passage up the chimney, changed into radiant heat, and afterward thrown into the room." In addition to the extra heat obtained from the lean over back, its influence must be beneficial in keeping the general atmosphere clear of gases and smoke, a very considerable percentage of which must be consumed in this way that otherwise would escape up the flue. The Norwich grates that caused so much notice, through the clerical correspondence in the Times, were undoubtedly a great improvement upon their immediate

contemporaneous predecessora and inasmuch as they were conclass. structed on principles which reduced the metal work and introduced more fire brick into the basket; but they had one great fault-they were all advocating a shallow grate from back to front, a formation that has many disadvantages. Rumford said, before he discovered his lean over back, that a proper depth was from 6 inches to 8 inches for middle sized rooms, and pointed out that where the fire place was made shallower than this it would be difficult to prevent the fire going out; even if the fire does not go out it will be apt to burn dead. Another objection to a shallow fire place is in such a case the fuel must necessarily be continually pressing against the fire bars, the result of which must be an untidy hearth, in consequence of ashes and cinders being forced through by this continual pressure; whereas if the fire place is deep, the fuel need not press against the bars at all, they being simply a guard or fender in case of dislodgment of fuel in combustion. For this reason I prefer to use a larger fire place than is advocated by others, and build the fires quite independent of the bars—in short, I think, the fire place would be much improved if constructed to do without the front bars altogether, thus giving an uninterrupted view of the fire, and the radiation would then also be unobstructed. Even with the most approved upright steel bars, with a moderate fire this obstruction or screen is not less than 25 per cent. of the surface of the fire.

#### Dr. Bartlet's Patent.

The best of the Norwich grates was Dr. Bartlet's patent, which had a depth of 61 inches at the base reduced by the shape of the bars to 41 inches at the top. This grate was recommended in these words: "These bars are so arranged that as the fuel descends it falls into freer space, by which means the fire is caused to keep alive and burning for a very considerable time without attention." This in itself was rather a severe criticism upon the so-called parson's grate. Dr. Bartlet's grate had also another advantage, the fire bars being vertical steel bars, instead of the then usual heavy horizontal bars, but the fire brick back of this grate, although well begun, was not carried out in the same spirit, because the back above the bars receded and formed an unnecessarily large opening to the throat of the flue. For a few years these grates were much in favor, and had many imitators all over the country. Manufacturers did not hesitate to copy the principles or the designs, which were mostly of Japanese origin. The fret or economizer seems origin. The fret or economizer seems to have become pretty general in one form or another about this time. The economizer is undoubtedly one of the chief improvements to the open fire place, supplying as it does a hot air chamber beneath the fuel, thus facilitating, and at the same time controlling, the combustion. Fire brick bottoms in a measure helped to do this, but not so effectually, and they have this disadvantage—the ashes have to remain in the grate or fall on to the hearth in view; with the economizer the hearth may be kept perfectly clean, but to insure this, in addition to the use of the economizer, it is necessary to fix the bottom grating or gridiron lower than the bottom bar of the grate front. This not only keeps the hearth free of cinders and ashes, but hides the dead and untidy part of a fire from view.

#### Cost of Stove Patterns.

BY I. OPEN.

The discussion of the cost of stove patterns, whether in the office or foundry, is apt to bring to light some things that are less disagreeable when kept shady. The sand heap of the biggest foundry dwindles to so and hill compared with the "heap" that is put into stove patterns and to reduce this "heap" to the ant hill proportion is a secret that some have not yet discoverd, or at least have not yet put into praetice. That the practice will not be followed widely by that class of foundrymen who lay up their treasure in other places than bank vaults is more than probable when the secret is disclosed by the relation of the following experience:

In making a business trip that kept the Atlantic ocean within a day's travel a hint was given that interesting informstion could be secured by stopping at the foundry of an enterprising firm. The foundry was not as big then as it is now. because it is said that the wicked shall flourish for a season. The boss was not in, but by some push and geniality a chat was started with a workman who seemed in authority and a trip about the foundry to show it off was made. One of the parts of a popular stove, all filed up and mounted on a new fallow board, called forth the remark that the stove that that piece belonged to must be a new one and a seller. The workman said it was, and the conversation brought the information that they were going to make it in three sizes.

Then the visitor masqueraded as a buyer from the tenement house district of New York on the lookout for a bargain in a small stove and would buy 500 if the price could be made right and the stove showed up right. The workman said he thought he could show him a stove if he would say nothing abroad at present, as the stove was not quite

ready for the market.

They adjourned to the pattern filers' domain and there another size was all filed up ready for the sand and set up previous to being taken apart and sent to the fallowboard man. Another size was partly filed up, and on expressing satisfaction the boss was hunted up and a net cash price was quoted on all sizes which was 20 per cent. lower than the inside price to big jobbers made by the house who put the stove on the market. The boss said that was as near as he could quote, but not to close a contract until he had got the stove running in the sand, as he would do better if he could, but must have the profit that he had calculated on in the price quoted. He was told that the small size was most in demand and the order would probably be divided 300, 150 and only 50 of the large size, at which he made no complaint.

Well, the stove came on the market, and as it had a patented feature which the original foundry made under a shop right, application was made to the patentee to protect them, but as there was no money in it for the patentee he respectfully declined. There was no design patent on the stove, and the pirate continued his piracy, at a small expense for patterns and no expense for advertising or introducing a well-known

and popular stove.

In another section sufficiently removed to prevent conspiracy, but at the same time a man deparated from his early training and filed up a stove that was having a fine run in his locality, and made trouble by selling it at a low price to dealers, who cut under the

price which rival dealers thereabouts got for the original of the counterfeit. This stove, however, was of striking contour and of plain style, yet was proteeted by a design patent, or copyright; so the blast was put on the pirate, which made him take water, but in order to remove further temptation bis counterfeit patterns were purchased for a nominal sum. He had experienced trouble in making some parts straight. and incurred a considerable loss, and these parts began to crack in a short o that orders for new parts came in. He could not supply them, and the wrath of his trade proved expensive and enduring. Verily, the wicked shall flourish for a season! So long as "buy chesp and sell dear" is practiced there will be enough people in this world who follow it to take the goods made from stolen patterns, though such goods are not freely bought by reputable tradesmen, particularly straight out stove dealers.

#### Robert Diven.

Robert Diven, one of the oldest stove men in New York and for nearly forty years connected with the J. L. Mott Iron Works, died on the 7th inst., 72 years of age. He had been more or less an invalid for a number of years, but kept at his post pretty ateadily, until finally he succumbed to his mala-With him passes away one of the old time characters of Water street. He was posted on all the tradition and ancient gossip of the street, and never seemed more pleased than when talking on these subjects. His knowledge of old New York and its people was very interesting. He used to live on Beekman street many years ago, in the old Hermance boarding house, the home of many men who have since become noted and wealthy both in the hardware and stove trade throughout the country. James de la Montanye of San Francisco lived there when he was in business in New York. Of late Diven has lived in the past, and never seemed tired of talking of it. Bob was always kindly disposed and charitable to all, and while he would indulge in emphatic expressions at times he quickly forgot them and never held malice. His funeral took place on Sunday af-ternoon from the old John Street Church, one of the venerable relics of down-town New York, and a very fitting place for the finality of one who had spent so much of his life near the sacred spot. The stove men were well represented at the services. Mr. Jordan L. Mott and a large number of his staff were present. The remains were interred in Greenwood.

'Man that is born of a woman hath but a short time to live, and is full of misery. He cometh up, and is cut down, like a flower; he fleeth as it were a shadow, and never continueth in one stay."

JEEMS.

#### ODD PLATES.

GRAFF & Co., 208 Water street, New York, have such faith in their Faultless furnace No. 70 that they offer to warm with it "all the dear brethren left out in the cold on election day." An examination of this monster heater is sufficient to convince the most skeptical that they would probably be successful in the undertaking if the opportunity were offered them.

A CIRCULAR illustrating the gas furnace made by the Pennsylvania Gas

Furnace Company of Buffalo, N. Y., reaches us, bearing the imprint of A. II. Dixon, 41-43 East Bleor street, Toronto, Canada. The merits of the heater are set forth in a way to convince the skeptical, tables being given showing the heating capacities and prices of the various sizes in which the furnace is manufactured. Mr. Dixon is the Canadian manager and states in the circular that it is the intention of the proprietors of the patent to dispose of provincial and county rights and also to manufacture the furnace in Canada.

J. H. Court & Son, 222 Water street, New York, with Brooklyn store at 41-51 Adams atreet, have presented to the Twenty-third Regiment's Fair, now being held at the new armory, corner Bedford and Atlantic avenues, Brooklyn, a sample of their very best work, in the shape of a No. 418 Cort gas range, with high shelf, canopy and water back, handsomely nickeled over all.

M. M. Gowdy, Springfield, Mass., reports a good demand for the Cole air tight heater, and is making some improvementa in its construction. The cover of the fuel chute is now hinged to turn back. Being made of planished iron and lined with No. 20 steel it is durable and a quick heater, adapted for the use of chips, cobs or wood.

THE CHICAGO & ERIE STOVE COM-PANY, Erie, Pa., are distributing itlustrated circulars of their Modern Helper and Quick Helper steel ranges. In reference to the former the makers state that while in shape it is similar to a steel range, it is heavier than an ordinary cast range, so they have combined many of the advantages of both cast and steel constructions in this four-hole range. The bottom oven plate is of steel supported by the automatic adjustable patent braces which have been so successfully employed in connection with their best steel ranges. The Modern Helper has an end broiling door, which can also be used as a feed door if desired. The quick oven is accured by means of the peculiar arrangement of plates already referred to. The drop door is well balanced and is fitted with a patent adjustable spring of the Alaska type. The Quick Helper is provided with heavy, atrong castings, end broiling door and oven constructed in the same manner as that described in connection with the Modern Helper.

THE SOMERSET STOVE FOUNDRY COMPANY of Someract, Mass., successors of the Boston Stove Foundry Company and the Someract Co-operative Foundry Company, favor us with a copy of the new catalogue which they have issued illustrating their lines of Somerset stoves and ranges. The Somerset Grand six-hole range is the leader and occupies the place of honor in the catalogue. The Wyoming, Somerset G, New Grecian, Matron, Somerset Jewel, Arion cian. and Harvest are the names under which other goods shown are offered the trade. The heaters occupy a number of pages, the place of honor being given to the New Somerset, a round sheet iron surface burner which embodies the modern features and which is offered the trade in three sizes. At the close of the catalogue is a notice to the effect that the company have "purchased the pat-ents embracing all improvements under Goodfellow's patents for the manufacture of the Nonpareil agitating fire and sifting grate. Also Goodfellow's nonpirate and non-warping fire grate." A feature of the catalogue is a list of stoves, ranges and heaters for which repairs can be furnished.

The Standard Lighting Company, Cleveland, Ohio, send us folders relating to their New Process oil heater. The manufacturers state that they use with this heater the mammoth globe linean-descent lamp with a special attachment or spreader, which, with the drum, can readily be removed. With the spreader changed and the glass chimney placed in position, the heater is converted into a 200 candle-power lamp. The oil fount is of brass, nickel trimmed, and the drum is of Russia iron, with ornamental top. The heater stands 28½ inches in hight, is 9 inches in diameter and weighs 13 pounds.

Joseph Huse & Son, Boston, Mass., are issuing a card on which is a bright new cent, with the statement: "You are a cent ahead, but you will be dollars ahead if you purchase your stove repairs from us."

A PRESS DISPATCH from Russell, Ky., announces the destruction by fire of the stove foundry of George Harbly & Sons, at that place. The loss is partly covered by insurance.

M. H. WILDER, Florence, Mass., of the Central Oilgas Stove Company, was a visitor at the New York office this week, and also made some visits among the New England trade. The new oil heater brought cut by them this year has proven a popular stove.

AT THE RECENT MEETING of the Southwestern Stove Manufacturers, held in St. Louis, the Ireland & Matthews Mfg. Company of Detroit, Mich., were represented by their Mr. Matthews. They had on exhibition a full line of urns, knobs, &c., which attracted considerable attention.

Among the Special Notices in our advertising columns this week is the announcement of a stove foundry business for sale that will interest the trade. The business has long been established and favorably known, and any one desiring to enter this field of industry would do  $w \in \mathbb{N}$  to inquire into the matter.

THE WROUGHT IRON RANGE COM-PANY, St. Louis, Mo., have secured the contract for the entire kitchen outfit for the new steamer "St. Louis," which was launched at Philadelphia on the 12th inst. The contract includes every article used in furnishing the kitchen from the large center range down to the commonest pewter fork. of the size of the contract and the immense amount of material which will be required can be obtained when it is remembered that the ateamer will have a carrying capacity of 1500 persons. The Wrought Iron Range Company are naturally proud of this contract, secured over 1000 miles from their factory, and in competition with the leading concerns of the country.

The following interesting item appeared in the issue of the Boston Daily Globe of Thursday, November 1: "A Globe stove, manufactured by the Central Oilgas Stove Company of Florence, Mass., has caused a ludicrous development in human nature. The stove is a magnificent heater, and it lights up the room beautifully, the round glass globe of this particular floor lamp heater giving forth a charming mellow light. The ground glass illuminator has the word 'Globe' cut in exquisite design. Now, the rich part of the story is the fact that some individuals actually refused to buy Globe stoves unless the word 'Globe' was obliterated from the illuminator. While they admire the illuminating influence of the Globe news-

paper, they do not care to have a distinctively Globe stove. They say their friends might think them Democrats. And this would be too bad."

THE GRAND RAPIDS VAPOR STOVE COMPANY of Grand Rapids, Mich., have about closed a deal for the purchase of the property on Mill street formerly occupied by the Grand Rapids Felt Boot Company. The purchasers are now occupying a building on lower Canal street. They have succeeded in building up such a large trade that the business has outgrown its present quarters and more room is needed. building upon the property purchased is five stories in hight and covers an area of 50 x 100 feet. The purchasers will at once build a japanning room in the rear of the building, 40 x 50 feet in dimensions, and they expect to be located in the new plant by January 1. The building is supplied with atcam and water power, but electric power will also be added to be used in cases of emergency. The stockholders of the company are Thomas Friant, Daniel McCoy, Felix Raniville. Thomas M. Peck, McGeorge Bundy, Joseph J. Tucker, Lois A. Giddings, F. A. Stone and R. A. Kenyon. Frank A. Stone is general business manager and B. P. Kenyou is superintendent of the company.

THE REPORT is in circulation that capitalists of Wausau, Wla., are contemplating the establishment of a stove works at Marathon City.

FRANK H. T. BARNOUR, vice-president of the Detrolt Stove Works, was married on the 8th inst. to Miss Elsie Mary Tower, daughter of O. S. Tower of Ionia, Mich.

THE MICHIGAN STOVE COMPANY are distributing among their patrons a "burglar proof purse" which is ingenlously constructed so as to afford no little amusement. The purse is of the frog mouth pattern, made of the best materials, and the uninitiated cannot open it when closed, nor shut it when open. On one side of the purse the company's Garland trade-mark is atamped in gilt with "compliments of Frederic W. Gardner" underneath.

H. M. CARY, 34 Portland street, Boston, agent for Sam S. Utter, paid a visit to New York this week, the principal reason being to consult with Sam concerning an order for a large lot of gas, oil and cook stoves.

THE EXCELSION MFG. COMPANY, St. Louis, Mo., are advising their friends to prepare for the holidays by purchasing the Toy Charter Oak stove, which, it is claimed, sells on sight and is a good advertisement for the dealer handling it. The Toy Charter Oak is a facsimile of the full size construction and is made with the same care and attention to details.

BUCK'S STOVE & RANGE COMPANY, St. Louis, Mo., are mailing to their friends in the trade a circular illustrating Buck's Royal air tight heater, adapted for using as a fuel any kind of coal or coke. The cast iron dome of the stove is made in one piece, the feed door is large, the air tight base is provided with capacious ash pan and the grate is of the basket pattern with cone center. The makers state that they have thoroughly tested this mode of construction and know it will prevent the fire pot frem burning out, and cause a better and cleaner combustion on account of the increased grate aurface. The heater is shown in general view and also with the casing removed.

THE IRELAND & MATTHEWS MFG-COMPANY of Detroit, Mich., are about increasing their manufacturing facilities by the addition of a building 40 x 100 feet in size and three stories in hight. The company expect the atructure to be ready for occupancy about January 1. The new structure will cost about \$12,000.

THE PHILLIPS & BUTTORFF MFO. COMPANY, Nashville, Tenn., state that there is no foundation whatever for the rumor recently current in the trade that they expected to take charge of the plant of the Harvest Stove Company at South Pittsburg, Tenn. The proposition has not even been considered and the rumor probably grew out of the fact of Mr. Buttorff's recent visit with the officers of the Tennessee Coal, Iron & Railroad Company to the various industries located at South Pittsburg.

THE PENINSULAR STOVE COMPANY of Detroit, Mich., have just issued and are mailing to their friends in the trade a new edition of a special furnace catalogue, illustrating some of the constructions which constitute their product in this line, and covering both hot water and warm air heaters adapted for using various fuels. A written guarantee accompanies each furnace sold, and is emhodied in the company's furnace contract, as explained in the little pamphlet which they have issued. There is also given among the pages a long list of names of persons in various parts of the country who have used the company's goods.

### Trade Notes.

THE R. E. PARSONS COMPANY, Bridgeport, Conn., have added a department for the manufacture of Brass, Copper and Composition Castings to their establishment.

THE ST. LOUIS METAL & SUPPLY COMPANY, St. Louis, Mo., issue a leaflet of testimonial letters relating to Star Anti-Friction Metal which they manufacture.

THE ROME BRASS & COPPER COMPANY, Rome, N. Y., have just completed a two-story addition to their large mill. The company employ about 300 hands.

THE ROANOKE ROOFING & CORNICE COMPANY, Roanoke, Va., are about to add a car factory to their plant.

FRED. HARTMAN, 143 Wells atreet, Chicago, has a number of contracts for the gaivanized iron work used in connection with refrigerating machinery.

TELEGRAPHIC ADVICES from St. Louis, Mo., indicate that Tin Plates, Galvanized and Black Sheets, Corrugated Iron and House Furnishing Goods are enjoying a large measure of activity in that district at the present time. The demand is referred to as good and the aelling as heavy.

McKeesport Supply Company. McKeesport, Pa., manufacturers of and jobbers in Ferrotype Plates, Japanned Signs, Developing Trays, Panels, &c., Plumbers' and Gas Fitters' Supplies, Fenders and Coal Vases of iron and brass and Aluminum Wares, issue a circular under date of November 1, in which they announce that they have become an incorporated company, with George Russell, president; Wm. A. Cornelius, vice-president; Theo. Tonnele, treasurer, and Theo. M. Hopke, secretary. They state that they have enlarged their manufacturing facilities, and promise the best workmanship and prompt attention to all orders

placed with them. In addition to their usual line of goods they are prepared to undertake the manufacture of novelties and specialties in japanned or pressed ware, also small castings for ornamental purposes, &c.

F. J. BLAKE & Son, Hartford, Conn., sre building for a new chemical company some large Copper Stills and have a number of contracts for coppersmithing work. They also run a brass foundry.

THE FERRACUTE MACHINE COMPANY of Bridgeton, N. J., manufacturers of Presses, Dies and other Sheet Metal Tools, have recently received orders for three special inclined Embossing Presses for the Standard Caster & Wheel Company of New York, and have furnished previously to that company 12 of their other Presses for the manufacture of patent ball joint casters. Among recent shipments were six Presses with automatic disl feed attachment and  $\epsilon$ mbodying entire new features for accurate feeding to the Metal Rlm Rag Company of New York, and a Press for the General Electric Company of Schenectady, N. Y., which weighed about 20,000 pounds, and is capable of cutting out a blank 54 x 36 inches and will give a pressure of nearly 100 tons. They are also building two more Presses of the same general style for sheet metal work in Western factories.

AN ITEM going the rounds of the trade press during the past few weeks conveys the impression that the Anthony Wayne Mig. Company of Fort Wayne, Ind., in view of the plant being erected for them at St. Louis, Mo., would give up the former location. Recent advices from the company are to the effect that a branch factory has been established at St. Louis 50 x 125 feet, four stories, located on the corner of Msine and Sidney streets, which is now being equipped with the necessary machines a day. This step has been taken in order to be right in the center of the market, saving freights on lumber, also shipping machines from Fort Wayne, the St. Louis trade on the company's production averaging from 25,000 to 30,000 mschines annually, which amount, it is believed, can be doubled as soon as the new plant is in complete operation. The Fort Wayne plant will be operated as heretofore under the able supervision of A. C. F. Wichman.

The Plant of the Brilliant Steel & Iron Company, Brilliant, Ohio, which has been idle for some time, has been purchased by Joseph R. Jackson, formerly superintendent of the plant of the National Tube Works Company, McKeesport, Ps. It is stated that others are interested with Mr. Jackson in the purchase. It is the intention to make a number of improvements to the plant, and it will be equipped for the manufacture of Wrought Iron and Steel Pipe.

"Home Comfort Urns" is the title of a 16-page pamphlet which reaches us from the Wrought Iron Range Company of St. Louis, Mo. The Coffee and Tea Urns illustrated and described are made with a hot water compartment surrounding the inside cylinder, which is constructed with an enameled steel, atone or solid white porcelain jar. The hot water is siphoned from the hot water boiler into the Tea and Coffee Urns, which are made of any size or capacity required. A feature of the pamphlet is a price-list of the goods shown.

THE MILLETT CORE OVEN COMPANY, Brightwood, Mass., have a good selling

device in their patent portable Core Oven, which has been found very convenient in small foundries. Its dimensions are 36 x 36 x 48 inches in hight and doors open at different hights, to which shelves are attached for holding in the cores. When the door is opened so that the shelves are exposed, the opening is closed by an inside door. Four of the doors are 5 inches high and one 10 inches. The Ovens are also made for brick setting.

THE ARREST this week of a former senior partner of a well-known enameled ware importing house on a charge of undervaluation to the extent of \$100,000 has caused not a little stir in the trade. It is freely intimated by American manufacturers that cuameled goods have for years been systematically sent into this country under false valuation, and if this charge is true it is highly desirable that the practice be stopped.

IN THE NOTE in The Metal Worker November 10, referring to the Uncle Sam Dampers made by the Sayre Stamping Company, Sayre, Pa., it should have been clearly explained that the stem alone is of mslleable iron, while the damper plate is of steel.

On November 5 the last span of the bridge across the Ohio River, connecting Louisville, Ky., and Jeffersonville, Ind., was finished. The span was 550 feet in length, being one of three of the same length. One of the other spans is 210 feet, and the other two 340 feet, making six spans in all. The spproach ou the Indiana side is 4000 feet long. All of this is completed. The approach on the Kentucky side is to be 2600 feet long. The hight from low water to the coping of the bridge is 90 feet. The trusses are 84 feet high by 30 feet wide, single track, with footway on each side. The entire bridge, including approaches, is of ateel. The traveler, which handles the heavy material, is 105 feet high. The last span was completed entirely in 54 hours' time. The sub-structure will all be removed by the 15th of the present month, and the bridge proper completed will be turned over to the owners by the Phanix Iron Company, who built it. This bridge will be operated by a company, and several railroads are now figuring for the right to use it. The two most prominent projectors of this bridge, Dennis Long and Jacob Krieger of Louisville, both died before the bridge was more than started.

Industry of San Francisco says: "There is a good deal of difference between making the details of a war ship and assembling one. The Union Iron Works here is about the only place in the world where a ship is wholly produced in the works. The "Oregon," duced in the works. The "Oregon," for example, contains 120 steam engines, every one of which was made in the Union Iron Works, while the sister ship, constructed by the Cramp Company, at Philadelphis, contains 72 engines made by other firms. Not only this, nearly all the steam and water fittings, the whole of the hydraulic apparatus, and indeed nearly every detail of all the ships built here are produced in the works at the Potrero. Even the electric lighting plant was put in by the contractors, who purchased only the dynamos and other elcments that could not be produced by the resources of their own establishment. This is a very important fact in respect to the Union Iron Works, and indicates an ability of staff, plant and administration without parallel." The Busy Season and its Temptations.

19Y L. A. N.

The busy season of the heating trade, particularly of that part of it which is principally related to domestic heating appliances, has arrived. Business has been bad with this trade for so long that what this autumn may offer will be eagerly sought and competed for. That phase of competition and bane of trade, cutting prices, is under such circumstances likely to be excessively indulged in. Its effects upon the whole duiged in. Its effects upon the whole trade have often enough been pointed out. They are universally recognized as bad. Talk with almost any man in the business and he will both admit and lament the cvil. The chances are that within an hour after the conversation he will slice all the profit off an estimate to keep his neighbor over the way from getting the job at a cut price. It is only a question between these rivals of which can stand this sort of thing the longer. Mr. Longpurse can stand it for a greater time than Shortpurse, and he flatters himself that when Mr. Shortpurse has folded his tent and silently stolen away the field will be clear, prices can be restored and the money sunk in wiping out competition can be regained. Is this sure?

Shortpurse has gone out of businessperhaps has been employed as a salesman by Longpurse or some other dealer, and lives to regret that he had not atopped before he began business for himself. The interest on the money he has sunk in a foolish atruggle, would now gratefully eke out a salary not any too large for his needs and wishes. But Longpurse's bank account is not so full as it was, and this being known to some enterprising man, the latter sees an oppor-He rents Shortpurse's old tunity. store, fits it up nicely, stocks it with nice goods, and Longpurse finds he has got to divide the trade or begin to cut prices once more. Perhaps he can stand a second dose of this, but the years are rushing along and he is not getting rich. He has not even amassed a com-The time for inventories and balance sheets is approaching and he has well grounded fears that the end of the year will show that instead of any profit having been made, his capital has been further impaired. This does not make him happy or proud. would be better off, perhaps, if he also had folded his tent like Shortpurse. Sympathy for such men acems misplaced, for cutting prices below a fair margin of profit is not only the meanest, but the most dangerous kind of competition indulged in by any business man. If the trade cannot realize a reasonable average profit for all the men in it, its condition cannot be improved by lessening profits. The trouble is that there are too many in the business.

Grand Chief Arthur of the Brotherhood of Locomotive Engineers has voluntarily withdrawn his appeal from the injunction issued against him by Judge Taft on the application of the Toledo, Ann Arbor & North Michigan Railroad Company compelling him to rescind his order to the members of the brotherhood in the employ of the company to refuse to haul their cars, and restraining him from issuing any further order of a similar nature. This ends a long litigation in the matter of the famous Toledo & Ann Arbor boycott.

# TRADE REPORT.

## The Iron Market.

Those who entertained somewhat sanguine views as to the immediate effect of the result of the elections upon business have been disappointed. Buyers have not jumped into the market, and the volume of business has shown practically no increase. We have no doubt but what the removal of a possible source of danger has strengthened confidence. The feeling is better, but there are other considerations which outweigh that in shaping the near fut-

ure of the Iron trade.

We are now on the threshold of winter, which is usually dull in the Iron business, unless buyers think it wise to anticipate their apring requirements. It was not so many years ago that the Rail mills had on their books, as early as October 1, orders for 1,000,000 tons of Steel Rails, for delivery during the succeeding year. Until now the position is very different. Few rolling mills, foundries, car shops or builders have orders reaching much beyond the current year and the majority have gaps to fill for 1894. Buyers cannot be tempted. We know of instances in which very advantageous terms were offered, without leading to the slightest anticipation of requirements.

In the Wire trade the latest development is the rupture of the newly formed Barb Wire combination, while war goes on vigorously in the Wire Nail trade. In the Cut Nail trade gossip deals most with a sale of 5000 kegs to a cooperage company closely allied with the Sugar Trust.

The atarting of two of the leading Western Tin Plate mills on a non-union basis is a movement of much significance. It means that an effort is being made to drive the Amalgamated Association out of one of its last strongholds.

Birmingham advices indicate that the Japanese Cast Iron Pipe order is not definitely closed.

Plg Iron. - New York market continues dull, and there are no indications of an expanding demand. As yet there has been no serious talk as to contracts for standard Northern brands for next year. From New England come complaints of very low prices on Southern Iron, while Buffalo furnaces are unsettling matters along the lower Hudson by putting in sample lots at low prices. In the Cast Iron Pipe trade everything is very quiet. Some negotiations are on for apring delivery, but there does not seem any immediate chance that business will result therefrom. We quote standard brands \$12.25 @ \$12.50 for No. 1; \$11 @ \$12 for No. 2; \$10.50 @ \$11 for No. 2 Plain, at tidewater. \$11 for No. 2 Plain, at tidewater. Southern Iron, same delivery, \$11.50 \$12 for No. 1; \$10.50 \$11.25 for No. 2; \$10.25 \$10.75 for No. 3; \$10.50 \$10.75 for No. 2 Soft, and \$10.75 \$11.75 \$10.75 \$ @ \$10.40.

A few enthusiasts in the Philadelphia market undertook to quote higher prices on Wednesday, but finding that orders were filled elsewhere, they soon reconsidered their action, and dropped back to the old figures, at which there is a good healthy demand. There is no particular reason for prices being higher except that they are too low for a reasonable margin of profit, but so long as there is a supply fully equal to the demand there is no reason why consumers should pay more money, as their margin is also much less than it ought to be. There is a little weakness in Bessemer Iron; other descriptions are steady at prices as last quoted for Philadelphia and equivalent points.

 Standard No. 1 Foundry X.
 \$12.50
 \$12.75

 Standard No. 2 Foundry X.
 11.50
 60
 11.76

 Standard No. 2 Foundry X.
 11.50
 60
 11.75

 No. 2 Plain.
 10.75
 60
 11.75

 No. 1 Soft.
 11.50
 60
 11.75

 No. 2 Soft.
 10.75
 60
 11.00

Advices from Chicago intimate that the past has been a very fair week in local Coke Iron in that market, and several important deals were closed. While important deals were closed. the lateness of the season would appear to be unfavorable to heavy business, there are good prospects of the demand continuing moderately active until the spring trade sets in. The most hopeful feeling prevails among both manufacturers and consumers. Prices of local Coke Iron, however, are not expected to advance for some little time, until general conditions show more im-provement. Quotations on local Coke Iron have been revised this week in order to bring them more closely in harmony with actual prices recently current. This is not to be taken as incurrent. This is not to be taken as in-dicating that values have receded during the week, but is done in order to make a better basis on which to show any advance which may be made to-ward a higher range of values. Lake Superior Charcoal is in somewhat better demand, which is perhaps owing to the fact that the large dealers are again giving some attention to this class of Iron, which they have long neglected. Quotations are given as follows for cash: 

The demand for Foundry Iron in the Pittsburgh dittrict is light and prices are weak. Quotations are given as follows:

While the volume of business in the Cincinnati district during the week has not been large, yet there have been some encouraging features, with a stronger undertone all around. Sales were slightly enlarged. There was a better jobbing trade and there were several sales of 500 to 600 tons. There were also reports of pretty large buying by Southern Iron Pipe works. supplied at previous prices, and the most that can be said is that the tendency seems to be upward. Quotations are as follows:

larger amounts, which, however, the furnaces refuse to entertain. Prices are as low as it is thought they can go, and it is the policy of the furnacemen to stock their Iron rather than shade the market any further. Many con-sumers are allowing their stocks to run down in view of the annual inventory, so that the market is likely to be quiet until the turn of the year. We quote as follows for cash, f.o.b. cars St. Louis:

. 9.75 @ 10.00 dry ...... 9.50 @ 9.75 Southern Car Wheel ...... 16.50 @ 17.00

### Metal Market.

Pig Tin.-Very little change in prices has taken place during the past week. Values in the wholesale market are down to a level that tends to check bearish operations, but low prices have failed to weaken live buying interests. In short, it is a lethargic market as far as speculation is concerned, and few trades have been made except on more or less peculiar terms as to options and delivery that have a tendency to mystify rather than instruct the outside buyer. That there is some motive in this can hardly be denied, and that it is a means to speculative ends goes without the saying. It is an unmistak-able fact, however, that purchasea by out of town dealers and by consumers have been only fair and that sales are atill being made outside at prices unusually close to those that go into general circulation as being net cash rates for spot stock. Jobbers' prices for amall lots of Straits Pig from store have been marked down to  $16\phi$  @  $16\frac{1}{2}\phi$ , and for Bars to  $17\phi$  @  $17\frac{1}{2}\phi$   $\frac{2}{12}$  lb.

Copper. -There is no decided change, but the market has a weaker appearance and buyers are extremely conservative, not only in placing orders for future delivery, but in purchasing against immediate wants. It would seem that little concern is centered The elections last week have had a upon the endeavors of producers to resalutary effect upon the market. The demand, however, has been pretty freely has been a good teacher and that consumers have settled down to the opinion that there will be enough Copper of all kinds to go around. For small retail parcels the price of 101¢ ? It still rules.

Sheet Copper.—Dealers report that the inquiry is only moderate and largely of an unsubstantial nature, being made merely for the purpose of testing the market. Large purehasers still hold aloof, and the business passing during the week has been almost wholly in small orders to fill current needs. Prices for Manufactured Copper of all kinds are unchanged. Small jobbing lots of Sheet Copper are usually quoted on a net basis of 15¢ ? lb.

Pig Lead.—Some efforts have been made to give the market more tone, and in that connection reports were sent out of large business having been effected, but the alleged business cannot be traced. As a matter of fact, several sellers have been offering large lots for both near and distant delivery, at prices that are about down to the recent lowest figures. The demand from the smaller consumers has been of a very ordinary character. American Pig in small lots from atore is still quoted at from  $3\frac{1}{4}\phi$  to  $3\frac{1}{2}\phi$   $\approx$  lb.

Speller.—Ordera in this quarter have fallen off, and Eastern consumers figure as very indifferent buyers at the moment. Galvanizers, who were liberal buyers in some quarters a short time ago, have also modified their offers, and upon the whole the support is less promising at the present time than it was a week or ten days ago. Prices are rather easier. For moderate jobbing parcels from store the ruling price ranges from  $4 \phi$  to  $4 \frac{1}{2} \phi$  P lb.

Antimony.—Nothing more than routine business has been transacted, and the demand is exceedingly commonplace. Quotations in small lots are unchanged from those presented in last week's report.

Nickel.—Prices are extremely variable, with the range of  $38\phi \oplus 45\phi$  quoted, according to quantity and delivery.

Tin Plate.-Very little change has taken place during the week, either in the character of business or in the demand. The substantial increase in ordera which some oversanguine individuals looked for as a result of the elections has not yet materialized. The demand is still confined, for the most part, to moderate lots for prompt or part, to moderate lots for prompt or near future delivery, and is rather be-low the average for this season of the year. Many of the large consumera place their orders direct, taking all ad-vantage that there may be in purchas-ing for future shipment, and they go about it indifferently. Supplies on about it indifferently. Supplies on spot have accumulated somewhat, and the assortment is rather better, but some special sizes and qualities of Plates are more or less scarce and the "hunting around" by brokers in the endeavor to secure these Plates still continues. Along with the confirmation of reports of quite liberal stocks at foreign producing points this serves to give a weaker tone to prices. Imports have been rather heavy in the last week or ten days, but they are fairly well met by the consumptive demand. A special London cable dispatch of November 14 to The Iron Age reports as follows in regard to the British Tin Plate market: Tin Plate has been dull and prices are easy. Buyers very uncertain and waiting. Transactions limited. Large shipments have been made, chiefly on former

orders. Stocks at shipping points estimated now at about 200,000 boxes, a reduction of 30,000 boxes the past week. Swansea quotations are as follows:

Bessemer Cokes, '4 x 20	9.3	3.10	٠
Stemens Cokes, 14 x 20	10	15.1	ì
J. B. Steel Cokes, 14 x 20	[41	10	ì
Ternes, 20 x 28	10	97 21	
Charcoals, 14 x 20,	11	11194	

### Chicago Report.

Scrap.—Old Material continues quiet. Dealers quote the following list of buying prices, Chicago delivery:

Peri	net ton.	Per lh
No. 1 Wrought Scrap	87.(4)	
Machinery Cast	Fi (3)	
Malleable Cast	5,(1)	
Stove Plate (free of burnt)	4,00	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2,00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,	.,,,,	
SC	8.00	
Old Boilers-whole (Iron)	3.00	
(Iron)—eut in single	0.00	
Sheets and Rings.	5,00	
Old Gas-Pipe and Boiler	0.00	
	5.00	
Tubes	3,00	
Cast Borings		
Turnings	4.00	
Horseshoes	7.00	3
Copper Bottoms		6 ¢
Copper Clips and Heavy		7 6
Heavy Brass		6 ¢
Light Brass		3 0
Pipe Lead		240
Tea Lead		$21$ <sup>2</sup> $\phi$
Zinc		214 6
Rubber		31.4
Anthrogita Trade l	190 70	cently

Anthracite. — Trade has recently been light. Carload lots of 12 net tons or over are quoted as follows:

·	ŀ	Egg, Sto.
	Grate.	and Ch.
Chicago, Ill	\$5 00	\$5,25
Milwaukee, Wis	5.00	5.25
Kansas City, Mo	8.20	8.45
Council Blut's, lowa	8.20	8.45
Lincoln, Neb	8.35	8.60
Sioux City, Iowa	8.20	8.45
Aberdeen, S. Dak	8.25	8.50
Dubuque, Iowa	6.30	6,55
Madison, Wis	6.50	6,75
St. Paul, Minn	7.50	7,75
Burlington, Iowa	6.50	6.75
Des Moines, Iowa	7,95	8,20
Davenport, lowa	6.30	6,55
St. Joseph, Mo	8,20	8.45
Leavenworth, Kan	8.20	8,45
Omaha, Neb	8.20	8,45
O III and I I I I I I I I I I I I I I I I I I I		

#### Colorado Anthraeite.

COLORADO FUEL & IRON COMPANY.

Denver	\$8.00
Pueblo	8.00
Colorado Springs	S.00 8.01
Chevenne, Wyo	10.00
All points between Denver and	8.85
Missouri River	0.00

THE ARCHER & PANCOAST COMPANY were incorporated at Albany, N. Y., on November 14, to manufacture Lamps, Electrolicra and Gas Fixtures and Art Metal Work in New York City. The capital of the company is \$100,000, and the directors are Archer V. Pancoast, Chas. A. Cheever, Byron Traver, Wm. S. Fearing, John B. Summerfield and Samuel B. Lawrence of New York City. Henry T. Bragg of Yonkers; Gurdon S. Howe of Rosebank, S. I., and Ed. Cornell of Central Valley. Samuel B. Lawrence subscribes for \$99,600 of the capital stock.

THE NATIONAL SANITARY FURNACE COMPANY, Philadelphia, capitalized at \$50,000, were incorporated last week by the State Department for the manufacture of machines, furnaces and devices for the destroying of waste matter and garbage, d&pris and refuse matter and for the purpose of manufacturing Fer-

tilizers from the garbage and other refuse thus incinerated.

#### CONDITION OF THE

## Hardware Trade.

HE INTERRUPTION TO BUS-Three introductions to be since in the state of the public mind in political matters prior to the electron has been such reeded by a somewhat increased activity, orders the present week coming in a little more freely. There is a per-ceptible improvement in the feeling a little more freely. There is a perceptible improvement in the feeling that pervales the trade, and a confidence that more stable conditions will prevail which will serve as the basis for a gradual return to prosperity. The orders which are being received call for a good proportion of winter goods, this class of trade having been stimulated by the advent of cold weather, especially as a good many merchants, owing to the prevailing conservatism, had been more than usually late in making their purchases. There is also a fair demand for general Hardware, and on the whole the condition is better than a few weeks ago. The volume of business is not, however, on the whole up to the average, while it shows a decided improvement over last year. The tone of the market in the matter of prices is far from satisfactory, on many goods constations being weak and The tone of the market in the matter of prices is far from satisfactory, on many goods quotations being weak and irregular. The trade are, however, generally coming to accept the fact that prices on the whole are likely in future to rule low, owing to low prices of raw material mergased competition of raw material, increased competition among manufacturers and diminished among manufacturers and diminished cost of producing goods. Owing to these influences a return to former high prices is generally regarded as unlikely. At the same time there is no doubt that prices ruling on many lines of goods are exceedingly close, and, with a recovery in raw material and a fair increase in the demand, it is thought not unlikely the demand, it is thought not unlikely the demand, it is thought not unlikely that advances in some lines may be expected. Whether or not the bottom has been surely reached on goods in which marked declines have taken place during the past year or two is a question on which there is some difference of opinion. In this condition of things the trade are naturally purchasing with a good deal of conservatism, and it is difficult to obtain a line of goods in which there is any disposiof goods in which there is any disposi-tion on the part of careful buyers to place orders in excess of early requirements.

Advices from Chicago.—Shelf Hardware is doing fully as well as at any time this fall. The election excitement last week caused some little falling off in daily sales, but mail orders at the beginning of the present week are heavier than usual, which brings up the average. The conditions which have kept trade steady during the past two months still exist. Orders are small but frequent, showing that country merchants are being compelled to constantly replenish their stock. Staple goods are comparatively quiet, as is usual with the approach of winter. Seasonable goods have been in rather light demand, owing to the very mild weather. But the past week winter seems to have set in in earnest and a much stronger demand is now expected for all classes of these goods. Tinware and House Furnishing Goods have been in somewhat less demand than was reported last week, but on the whole this class of trade is doing considerably better than during the early fall months. The Heavy Hardware business has improved considerably. Inquiries are better and consumers now are talking more favorably of stocking up on staple goods.

### Notes on Prices.

Wire Nails.—The Wire Nail market continues in very much the condition referred to in our last report. The de mand is fair and some heavy orders have been placed, with some large shipments that buyers might have the advantage of water transportation. The market continues to be represented by the quotation of 95 cents, f.o.b. mill, for carload lots, with a 60-cent average, but this figure is shaded and on attractive orders 90 cents is obtainable.

Advices from Chicago.—Factory prices recently have settled down to the level of \$1, Chicago. This is due to the low rates made by water from Eastern points, which eatablished a delivery price that had to be met by manufacturers in interior localities. The large contracts which are usually placed for late shipment before the close of navigation were attractive, and the lowest rates were made to secure them. Several important transactions of this character took place during the past week. Now that the season of navigation is about over and shipments must be made by rail, there is an expectation that prices will be firmer. Jobbers are of this opinion as well as manufacturers. Small lots from atock are quoted at \$1.10.

Cut Nails.—There is a fair demand for Cut Nails, but the volume of business is not especially heavy. Small lots from store in New York are quoted at \$1 to \$1.05.

Advices from Chicago.—The volume of business last week, as reported by manufacturers, improved considerably over the average of the preceding weeks. Single orders are no larger, but continue to run to carload lots, with an occasional call for two carloads. Small lots from stock are quoted at \$1.

Barb Wire.—The Barb Wire marke is, as usual at this season, quiet so far as actual businesa is concerned, the demand being light and comparatively few orders being placed for next spring. In the matter of price the tone of the market is not quite so strong as it has been, owing in part to rumors of some disagreement among the manufacturers. In this condition of things some of the large trade are deferring placing their orders, awaiting developments. Quotations on Four-Point Galvanized in carload lots are as follows: Pittsburgh, \$1.90 to \$2.05; Cincinnati, Allentown, Chicago and New York, \$2.05 to \$2.15.

Advices from Chicago.—Not much business has recently been done in en-

Advices from Chicago.—Not much business has recently been done in entering new orders for spring delivery, so far as can be ascertained. Country merchants are making some inquiry for shipments beginning in January, but are not yet inclined to indicate how much their purchases will be. They are disposed to wait until they are thoroughly assured that prices have touched bottom. Such harmony exists among the Barb Wire manufacturers, however, that there is strong reason to believe that the present basis of values will be maintained. Orders for prompt delivery are now small, owing to the prevalence of winter weather throughout the Northwest. Trade continues in fair volume with Southwestern points, which, however, only take a small part of the output of this section. Jobbers quote amail lots of Galvanized at \$2.25 from stock, and \$2.10 to \$2.15 from factory.

Western Autograph Register.— This Register was illustrated in our last

issue. It is manufactured by the Western Autographic Register Company, 927 and 929 North Eleventh atreet, St. Louls. The register is sold at \$15 each.

Glass.-Prices of Glass have not gained atrength during the past week, though there is a noticeable improve-ment in demand. Additional factories are being put in operation and yet it is reported that stocks are not secumulating to any extent in manufacturers' hands. This would indicate that the production is being taken nearly as fast as the Glass is made. A fair local price for small lots is from 85 to 85 and 15 per cent. discount for single strength, and from 85 and 15 to 85 and 20 per cent. discount for double strength Glass. While importers quote 70 per cent. discount on foreign Glass, there is little doubt but that lower prices have been made, when brought into competition with American Glass. Demand for Plate Glass appears to be falling, with weaker prices. While there is considerable variation in prices New York and New England average quotations are probably 70 and 10 per cent. discount on sizes 5 feet and over and 75 and 10 per cent. discount for sizes 5 feet and under on the Eastern list. Upon the same basis Western prices are 70 and 10 and 5 per cent. discount on sizes over 10 feet and 70 per cent. discount on sizes 10 feet and less from the Western manufacturers' list.

Old Metals —There is a rather better demand for some descriptions of Scrap Iron. Other Old Metals are quiet. Prices paid by deslers in New York are about as follows:

Heavy Copper	<del></del>	TO A	₹
Light and Tinned Copper	39	Th 614	(4)
Light and Tinned Copper	****	T. 487	4
Honory Krass	777	m 1/4	
Light Brass	39	<b>To</b> 3%	¢
FIGUR DIASS	30	Th 98	14
Lead		B 01	
Too Load		m ~/	37
Zine	38	<b>Т</b> b 2⅓	(¢
Zine	10	T. 11	6
Vo 1 Powter	7	m vr	7
No. 2 Pewter		To o	Ψ
TT La Coren Iron 40 orross			
Wrought Scrap Iron. # gross	22 EO	20 0	nn
ton Wrong to Brown	\$1.50	ளு கூ.	00
Heavy Cast Scrap * gross			
ton	7.50	@ 8.	50
ton	1.00	G	00
Rtove Plate Scrap # K	LOSS M	ш .,.	~ -
Burnt Iron # g	ross to	n 3.	.00
Riller Rou			

Old Rags, Paper, &c.—The ruling prices paid by New York dealers are as follows:

iono
No. 1 White Rags 1 1 3 @ 31/4
No. 2 White Rags
Mixed Raga
Rines and 3ds
Hard Sized White Shavinga D 21/8 @ 21/4
No.1 White Book Snavings # Ib 1% @ 2%
No.2 White Book Shavings # Ib 1 @ 116
Light Book Shavings # Ib
NO. I MAUNA LAPORTO
110, 2 111111111111111111111111111111111
Common Paper b
Straw Chips 1b
No. 2 Bagging. # 15 14 @ 24 Hemp Twine. # 15 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Manila Rope B b 2 @ 2/80
Jute Rope B 134 @ 1840
Mixed Rope 19 15 % @ 1/6
mixed reoperation
Tarley by mychaeine

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

as follows:		
Car Springs, ton lots, # 1b	0	\$0.031/4
Rubber Shoes, carloads, de-		
Rubber shoes, less than car- loads, & lb	a	.04
Large Hose, W ton	a	10.00
White Wringer Rolls, W 10	- W	.0074
White Syringes, & Ib	0	.03%

#### CONTENTS.

	CONTENTS.
dit	orials: PAGE.
Fi	itration of Drinking Water 35
Pr	are Water and Good Health 35
	anklin Trade School Delayed 35
Ðı	rawback Payments 35
	Letter Box-
	ispute About Radiator Connections.
	1Hustrated 36 oncerning a Ram 36
	Plumber's Experience 36
	n Improperly Shaped Flue. Illus 36
	umping Water Horizontally 37
	Why Do Tin Strainers Act So? 37
	r Human Machines 37 am and Hot Water—
ŀ	leating the Rosary Hill Convent. Ill. 38
	leating Notes
	гар
	ording and Cornice— Sheet Metal in Building Construction.
	Illustrated
7	The Pattern Cutting Class at the Pratt
	Institute
A 1	Flashings
	he Everclean'Stone Filter. Illus 43
	ews and Notes
	iu Plates—
	Pattern of Can Top Having One Side Vertical. Illustrated
п	loward Hot Air Blast Furnace. Illus 45
Т	he Trimo Nipple Holder. Illustrated 45
	lumbing and Gas Fitting—
	Evening Classes at the New York
	Trade School
	Cleaning Solder
	English and American Plumbing 46
	Springfield, Mass., Trade School
١,	Traps and Vents
'	Contracts 49
:	Melting Tin Plate Scrap in a Cupola 50
	Barker's Chimney Top Ventilator 50
1	The Retail Store— Improved Wire Scoop. Illustrated 51
	Even Balance Market Scale. Illus 51
	Streeter's Sensible Ash Sifter, Illus 51
١	Memoranda 51
1	Motor Cycles. Illustrated 52
1	Combination Heater and Cook Stove.  Illustrated
	Double Clinch Hose Band and Mender.
	Illustrated 53
	Selling Stoves
	Ideal Furnace Damper Clips. Illus 54 A Stove Day 54
	Stove Trade Notes—
	The Chicago Stove Trade
2	The Open Fire Place, Past and Pres-
2	ent.—II
2	Rnbert Divea
¢	Odd Plates 57
¢	Trade Notes
¢	The Busy Senson and Its Temperation
¢	Trade Iteport— The Iron Market
g	Metal Market 60
	Chleago Report 61
4	Condition of the Bardware Trade 61 Notes on Prices
%	Metal and Miscellaneous Prices 63
	Labor Exchange—
8/	Help Wanted 63
%	Situations Wanted

# Metal and Miscellaneous Prices.

### CHICAGO, NOVEMBER 15, 1894.

Tin-	) 1 r
Biraits pigs 170	
Imported Tin Plates-	lr
Charcoal Plates.—Bright.	
Prices, according to quality.  10, 10 x 14	11
IO, 10 x 14	11
Calland and JX, 10 x 14     65 7.50       EctynGrade   IX, 12 x 12     67 7.50       IX, 14 x 20     67 7.50       IX, 14 x 20     67 7.50       IX, 20 x 28     64 15.60       DC, 12% x 17     65 7.50       DX, 12% x 17     66 7.25       OR     0.0 x 12	1
10   2 x 12   6 5.59   10   12 x 12   6 5.59   10   12 x 12   6 5.59   10   12 x 12	l i
Ooke Plates-Bright.	١,
Per hox.    10	1
E, V, Otador Toylor	
Charcoal Plates.—Terne.	H
### Command ### Co	
20 x 28 @13.00 Tin Boiler Plates.	H
Per box of 100 sheets.  1.14 x 23 \$11.75  1.14 x 28 13.00  1.14 x 31 13.00  1.14 x 31 15.00  1.15 00  1.16 00  1.16 00  1.17 10  1.18 00  1.18	
56 sheets	
<b>XX</b> , 14 <b>x</b> 56 \$29.60 <b>X</b> , 14 <b>x</b> 60	1
	1.
American Tin Plates	Ι,
Charcoal Plates.—Bright.  Minerva:  1C, 10 x 14, 12 x 12, 14 x 2085, 375	50
10, 10 x 14, 12 x 12, 14 x 20 6.2 [X, 10 x 14, 12 x 12, 14 x 20 8.0] Usual extra for other crosses and 20 x 2 double these prices.	8

1	rondale, AAA, tissue paper packed   IC, full weight II x 20	
1	lrondale A A : 10, full weight, 14 x 20	N
	(rondale A : - 10', full weight, 14 x 20	
	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	1
	1rondale C, IC, 14 x 20, 100 lbs	(
i	Some Plates, Bright.	3
	R. W. & B., IC 14 x 20, 108 hs	,
	Roojing Plates.  Palm, IC, 20 x 28	
	Hickory, IC, 20 x 28	
	1X, 20 x 28 @ 10,50 Niagara, 1C, 20 x 28 9 50 Iroquots, 1C, 20 x 28 0,00 Westmorelaod:	
	IC, 14 z 20	
	Kenwood: 1C, 20 x 28	1
	Furmston: IC, 20 x 28	
l	Challenge, IC, 20 x 28	
	1C, 14 x 20	
	Illinois, Old Method: IC, 20 x 28	
	E. L.: 1C, 20 x 28	
	Jessie: 10, 20 x 28	,
á	IC, 14 x 20.     8.5i       IX, 14 x 20.     10.00       IC, 20 x 28.     817.01       IX, 20 x 28.     20.00	)
5	H B L Old Style:	- 1
5	1C, 11 x 20. 7, 00 IX, 14 x 20. 8, 25 IC, 20 x 28. 11, 00 IX, 20 x 28. 16, 50 Continuous Roofing Tin.	í
ŝ	Merchant's Tandemper roll, 2.73	5

	Sheet Iron-
	Black.
N	Common American Refined.   2 Stop   17 to 20.   2 B 2 2 100   2 10 to 14.   2 Stop   2 1 to 24.   2 B 2 3 100   3 1 100   25 and 26.   2 B 2 5 100   3 2 100   27.   2 5 2 5 100   3 2 100
l	Russia, Planished, &c.
G F	enuine Russia, ali numbers18¢ net. Patent Planished₩ B A, 10√¢; B, 9√¢ dis. 65
C	Craig's Polished Sheet SteelShe
L	Galvanized.
J	nnista or first qualitydls.75%10\$
١	Copper-
١.	Indot.
18	Casting Brands
-	Sheet and Bolt.
	Discount on old list(except advance on cold rolled polished boller sizes to 25¢), 25%.
- 1	Owner Duttoms
l.	Discount on old list, 25%. Scamless Brass and Copper Tubes. Hase price, 1746, Chicago, with extrassecordlog to size. Copper, Bronze and Gilding Tube, 36 % additional.
1	Base price, 1749, Chicago, with extras
;  1	Seconding to size.
	b additional.
1	Brazed Brass Tubing. (100 % lots.)
	. (To No. 10 inclusive.)
,   ,	Discount, 404. \$0.35 Plain, 34 inch up to 2 loch. \$0.35 Plain, 35, inch up to 34 inch
,	Plain, 14 inch up to 3-16 inch
:	Roll and Sheet Brass. (160 D lots.) Discount, 40%.
0	Slab Spelter-
١	Western Spelter4¢
0	Sheet Zinc-         800 b casks.         \$1,75           800 b casks.         4,05           Loose sheets.         5,05
0	Solder-
0 0	Extra Wiping 10%
0.5	The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.
0	Antimony-
5	Cookson 1(\$4@11# Hallett's 10@9%#
_	

1	Lead-
	Soft Pig Lead, Suge Bur 46 Pipe 54g, dis. 15 Bluck Tin Pipe 54g, dis. 15 Bluck Tin Pipe 56g, dis. 105
l	Pine Size die 10e
ŀ	Block Tin Pipe
l	Sheet 6¢, dls. 10%
1	Wrought-Iron Pina-
	15t and under, Plain
l	1% and under, Galv
l	14 and over, Plain
ŀ	Boller Tules, list Oct. 24 1892 70&104
1	Casing, list Nov. 16, 1892
ı	Inserted Joints Casing, list Nov. 16,
1	Steel Botler Tubes. 2744
i	Ly and under, Plain
ı	Cast-Iron Soil Pipe— Cast Iron Soil Pipe, Tarred; stace 2 to 6 inches, Inclusive
١	Cast Iron Soil Pipe, Tarred; sizes 2 to 6
ł	Other sizesdis 60s
ı	Leeder Pines-
l	Leader Pipes— Abendroth's Galv. Spiral Riveted 60% Austin's Corrugated
ı	Austin's Corrugated 654
Ì	Gordon & Gilbert's Corrugated 653
l	Ritchie's Suiral Lock Seam, Galv'd 604
İ	Austin's Spiral Ribbed Pipe, 65\$
١	Anstir's Corrugated. 955 Gordon & Gilbert's Corrugated. 955 Ritchie's (Galv. Iron only Cor'd. 956 Ritchie's Spiral Lock Seam, Galv'd. 965 Austir's Spiral Ribbed Pipe. 955 James A. Miller Bros. (Galv'd Iron only) Corrugated. 955
ı	
ı	Fibows- Adjustable
1	Spiral
١	Furnace Fittings-
١	Discount from Excelsion Steel Fur-
	nace Co.'s list
	Furnace Fittings- Discount from Excelsion Steel Furnace Co.'s list
	Steel Roofing— Perfection
	Dace Co.'s list.
	Steel Roofing  Perfection
	Steel Roofing— Perfection
	Steel Roofing— Perfection
	Steel Roofing— Perfection
	Steel Roofing— Perfection
	Steel Roofing
;	Steel Roofing— Perfection
5	Steel Roofing— Perfection
;	Steel Roofing— Perfection
5	Steel Roofing— Perfection
5	Steel Roofing— Perfection
5	Steel Roofing— Perfection
5	Steel Roofing— Perfection
5	Steel Roofing— Perfection
	Steel Roofing— Perfection. \$3,10 square Climax. \$2,10 square The Lloyd Spanish Tiling. \$1,50 square Motaille Shingles— Cnahman's. \$2,00 square Motaille Shingles— Cnahman's. \$2,00 square Mortanut & Co.'s Spanish Tiles: Copper, 14 os. \$38,00 square Tin. \$9,750 kil. 25 square Steel, painted. \$9,50 square Steel, painted. \$9,50 square Drain Pipe—Tile. Discount from list. 70s Painte, Oils, &c.— Decodrized Iseazine. 7466 s Iron Paint, Rright Red. \$5,2 Ground in oil, B. Red \$5,64 Ground in oil, B. Red \$5,64 Ground in oil, Purple\$5,6 Linseed Oil, Raw, in bbis. \$5,66 Linseed Oil, Raw, in bbis. \$5,
	Steel Roofing— Perfection. \$3,10 square Climax. \$2,10 square The Lloyd Spanish Tiling. \$1,50 square Motaille Shingles— Cnahman's. \$2,00 square Motaille Shingles— Cnahman's. \$2,00 square Mortanut & Co.'s Spanish Tiles: Copper, 14 os. \$38,00 square Tin. \$9,750 kil. 25 square Steel, painted. \$9,50 square Steel, painted. \$9,50 square Drain Pipe—Tile. Discount from list. 70s Painte, Oils, &c.— Decodrized Iseazine. 7466 s Iron Paint, Rright Red. \$5,2 Ground in oil, B. Red \$5,64 Ground in oil, B. Red \$5,64 Ground in oil, Purple\$5,6 Linseed Oil, Raw, in bbis. \$5,66 Linseed Oil, Raw, in bbis. \$5,
	Steel Roofing— Perfection. \$3,10 square Climax. \$2,10 square The Lloyd Spanish Tiling. \$1,50 square Motaille Shingles— Cnahman's. \$2,00 square Motaille Shingles— Cnahman's. \$2,00 square Mortanut & Co.'s Spanish Tiles: Copper, 14 os. \$38,00 square Tin. \$9,750 kil. 25 square Steel, painted. \$9,50 square Steel, painted. \$9,50 square Drain Pipe—Tile. Discount from list. 70s Painte, Oils, &c.— Decodrized Iseazine. 7466 s Iron Paint, Rright Red. \$5,2 Ground in oil, B. Red \$5,64 Ground in oil, B. Red \$5,64 Ground in oil, Purple\$5,6 Linseed Oil, Raw, in bbis. \$5,66 Linseed Oil, Raw, in bbis. \$5,
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	Steel Roofing— Perfection

## NEW YORK, NOVEMBER 16, 1894.

The following quotations are for small lots.

Aluminum-
No. 1 Aluminum (guaranteed over 98%
name) in colling incols
8mail lots
Ton lots
98% pure), in ingots for remelting:
Small lots B. 60¢
100-m lote
Ton lots 2 D, 53¢
Ton lots
pare Aluminum), cast in ingots for re-
melting: Small lots B b. 55¢
100-b lota B, 63¢
Ton lots
Antimony-
Hallett's \$ D, 952¢
Brass-
Planishednat
Roll and Sheet25@30%
Brass and Copper Tubes
Brass and copper tubbe
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
List April 9, 1894.
Plain Round Tube. Per b.
1. up to 4-in
%-in. np to \$s-in
12. in nn to lo-lo
b-16-in.up to % in
1-ln.up to 5-18-ln
8-16-in.up to 1/-in
Smaller than 16-in
9 in and larger Special
2 in. to 3 in., to No. 19, inclusive, .38
8 in. and larger
2 in. to 8 in., to No. 16, inclusive, .38  Copper and Bronze Tubing  34 % b more than brass,

THE IOHOWING QUOTACH
Conductors— Corrugated. Round or Square— daivanized. 60% Gaivanized, Locked Joints. 60% Tin. 60%
Spiral Riveted— Galvanized
Conductor Strainers—800 Strainers, Conductor.
Bottoms, Fits and Flats. 196 % B, net Ingot. 1036 Ansonia Grade Arisona 106 Ansonia Grade Casting. 936 Planished. 166 % B, net, basis
Tubes - See Seamless Brass Tubes. Eave Troughs-
Lap or Sup Joint, Galvanized60&10% Lap or Sup Joint Terne
Lap or Slip Joint
Galvanised
No.1. \$0.70 .77 .82 .87 1.05 per doz.

1	Elbows and Shoes-
× ×	Flat Orimp, Tin
ŝ	Corrugated,
×	Flat Crimp, Galvanised60% Round or Square.
-	Tin
е	Iron, Sheet-
	Black. Common R. G. Cleaned American. American.
t a	Nos. 10 to 16 # B 2.25 2.70d Nos. 17 to 21 # B. 2.35 2.70d
	Mos. 10 to 16. № b. 2.25 . 2.70d Nos. 17 to 21 № b. 2.35 . 2.70d Nos. 22 to 24. № b. 2.35 . 2.70d Nos. 25 and 26. № b. 2.55 . 2.10d No. 25 and 26. № b. 2.55 . 2.10d No. 27 . № b. 2.15 . 3.00d No. 28 . № b. 2.75 . 3.10d
t 8	American R R
8	Russia, Planishea, &c.
	ing to assortment
% %	Galvanised. B. B.
t	Nos. 10 to 16
×	Nos. 22 to 24
%	No. 28
	Lead-
	Bar

Block Tin Pipe
Metal, Expanded-
Mannfacturers' list No. 5.   10s
Mitres, Eave-Trough-Bee Eave-Trough Mitres.
Paints, Olis &c
Lead, Amn. White, in oil
Spirita Torpentine:
Potty: In barrels and & bbls
doofing Material, &c.:       Asphaltum, Triuldad, Refined, #         ton:       \$30.002\$35.00         Asphaltum, Rock, # Lon.       \$14.00         Coal Tar Felt, 1 Ply, # b.       2¢         Coal Tar Felt, 2 Ply, # roll 108 8q. fl.       \$1,4214
Coni Tar Felt, 3 Ply, # roll 108 sq. ft. \$1.85 Roofing Pitch # hbl
Mooning a near a nomination of

Pipe, Drain	Strainers Conductor—80%	Phillips' Roofing, IC, 11 x 20	Pontymister Old Style Grade, IC, 14 x 20, 5.50   Style Grade, IC, 20 x 2811.25   IX, 14 x 20, 0.50
ron Soll	Tin, Pigs and Bars— Banca, pigs, * D	Republic, IC, 14 x 20	Worcester Grade, IC, 14 x 204.623
Fittings, Pipe. " 65x10x104	Banca, pigs, * D	Scott's Extra Coated (Resquared), 8.00	20 x 28 9.25 1X, 14 x 20 5 75 20 x 28 11.50
Fittings (5. 10. 1) televis 65&10%	Tin Plates-	1X, 14 x 20 Standard IC, 14 x 20	
Pictipus for both kinds	Tin Plates- American Terne Plates- Alaska (re-squared) IC, 14 x 20 \$6 50	Star IC, 20 x 28 Superior, IC, 11 x 20	IX, 14 x 20 5.75
Pile, Spiral-	Alaska (resquared) 10,14 x 205.621 <sub>6</sub> Alderly, extra quality, IC, 14 x 205.621 <sub>6</sub> Allegheny, IC, 14 x 20	Taylor's Old Method, IC, II x 50, 6,50 Taylor Old Style (Resquared), IC,	20 x 28 9.00  1X, 14 x 20 5.76  20 x 28 11.50  Abercarne Grade.—IC, 14 x 20 4.25  A 5.76  A 5.76  A 5.76  A 5.76  A 5.76
Rock and Slag Wool-	Anchor IC 14 x 20,	14 x 25	20 x 28 8.50 IX, 14 x 20 5.50 20 x 2811.00
was street ordinary 1M 100	Anchor IC, 14 x 20 4 37 6 Apollo Rooting, IC, 14 x 20 5 50 IX, 14 x 20 6.50 Atlantic, IC, 14 x 20 5.25	The Osborn Roofing, IC, 20 x 28,12.25 IX, 20 x 28,15.25	
	Atlantic, IC, 14 x 20 5.25 Black Diamond (Extra Coated),	Seott's Extra Coated (Resquared),   S. 00     Scott's Extra Coated (Resquared),   S. 01     State   Imported Bright Plates— Charcoal.	
Rosin-	IC, 14 x 20 B. mis (Extra Coated), IC, 20 x 28, 11,50	Triumph, Old Style, IC, 14 x 20 7.50	Duty: 2.24 W B.
Common and Good-Strained	Postpu IC 14 v 20 IX, 20 x 2814.50	U. S. Monongahela, IU, $14 \times 20$ 6.10	land Grade. IC, 10 x 14
Common and Good—strained           Roein, C. & D.         * bbl. \$1,39.381.10           Bosin, E. & F.         * bbl. \$1,65.681.75           Bosin, E. & F.         * bbl. \$1,05.382.10           Bosin, G. & H.         * bbl. \$2,30.382.03           Bosin, H. & K.         * bbl. \$2,95.383.10	Brooklyn, IC, 14 x 20 4.50	U. S. Redipped, 1C, 14 x 20	" " IC. 20 x 28 10.75
Bosin, I. & K. + hbl. \$2.40@\$2.65 Bosin, M. & N. + bbl. \$2.95@\$3.10	Central, 1C, 14 x 20	Vigliant, IC, 14 x 20 5.00   Walde, IC, 14 x 20 6.00	" " 1X, 10 x 14 5.75
Seamless Brass Tubesnet Shoes and Elbows—See El-	Columbia, IC, 14 x 20	Westmoreland, IC, 14 x 20 6.25 Willow, IC, 14 x 20 5.25	" " IX, 14 x 20 6.75
bows and Shoes.	Cort's Old Style, IC, 14 x 20	American Bright Plates	" " DC, 1216 x 17 5.00
Slate Roofing— Ascording to size, f.o.b. cars, Quarry	1X, 14 x 20 9.50	Almond, IC, 14 x 20\$5.25	Allaway Grade. 1C, 10 x 14 4.874 IC. 12 x 12 5.15
Station.	" 1X, 20 x 28 15.00 Francis IC 14 x 20 5.12%	Brooklyn, IC, 14 x 20. 5.50	" 1C, 14 x 20 4.8734 " 1C, 20 x 28 9.75
### Sensylvania:    Best Bangor, # sqr.   \$3,25@44.80     Pen Arryle, # sqr.   3,70@4.00     Peach Bottom, # sqr.   4,75@ 5.60     Ro. 1 Chapman, # sqr.   3,90@4.25     Lehigh Slates, # sqr.   3,00@4.50	Atlantic, IC, 14 x 20 Black Diamond (Extra Coated), IC, 14 x 20 Bonus (Extra Coated), IC, 20 x 28, 11, 50 Bostou, IC, 14 x 20 Bostou, IC, I4 x 20	Climax, IC, 14 x 20 5.00	" " IX, 10 x 14 5.75
Peach Bottom, # sqr 4.75@ 5.60 Peach Bottom, # sqr 3.90@ 4.25	Excelsior, IC, 14 x 20 4.75	Excelsior, 1C, 11 x 20	" " 1X,14 x 20 5.76 " 1X,20 x 28 11,50
Lehigh Slates, ¥ sqr 3.30@ 4.50	Flag. IC, 14 x 20	Florence, IC. 14x20	" DC, 1236 x 17 4.50
Fermont:  8ea Green, ¥ sqr. 2.50@ 2.75 Purple, ¥ sqr. 3.50@ 4.50 Unfading Green, ¥ sqr. 8.50@ 4.00 Red, ¥ sqr. 9.75@12.00 Red, ¥ sqr. 9.75@12.00	Flushing, IC, 14 x 20	" IX, 14 x 20	Coke.
Unfading Green, # sqr 3.50@ 4.00	IC, 14 x 20	Hazei, IC, 14x20	10x20 6.75
Solder and Soldering	Globe, IC, 14 x 20 4,50 Golden Star Old Style, IC, 20 x 2815.00 IC, 20 x 2818.00	10na, 1C, 14 x 20	IX, 10x14, 14x20 5.50
Fluids-	Golden Star Cha Style, 1C, 20 x 2818.00	1X, 20 x 28	Imported Boiler Plates.
Solder Integrated 115%124	Grace, IC, 14 x 29	Vigilant, IC, 14 x 20 5.00 Watto, IC, 14 x 20 0.00 Westmoreland, IC, 14 x 20 0.00 Westmoreland, IC, 14 x 20 5.26 Zero, IC, 14 x 20 4.50 American Bright Plates- Almond, IC, 14 x 20 5.26 Brilliant (Tissue Packed), IO, 14 x 20 8.00 Brooklyn, IC, 14 x 20 5.50 Century, IC, 14 x 20 5.00 "IX, 14 x 20 5.00 Glanax, IC, 14 x 20 5.75 Forence, IC, 14 x 20 5.75 Forence, IC, 14 x 20 5.75 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Horence, IC, 14 x 20 5.00 Merchant's Dipped, IO, 14 x 20 5.00 Merchant IC, 14 x 20 5.00 Merchant's Dipped, IO, 14 x 20 5.00 New Castle Best Palm Charcoal, IC, 14 x 20 7.00	1XX, 14x28(112 sheets)
Prices of Solder Indicated by private	Hickory (Resquared), IC, 14 x 20 5.50	Mint, IC, 14x20	Tinning-
Soldering Fluids-	Juno, IC, 14 x 20. 5.75	1C, 14 x 20 7.00 1X, 14 x 20 0.00	Tinning- Brass and Coppernet
Concentrated Soldering Flux. f.o.b. New York.	1X, 14 X 20 3.90	New Castle Palm Charcoal,	Tubing-
In barrels, * D	Laufman's Apollo (Resquared), IC, 14 x 20. 4.75 Laufman's Apollo (Resquared), IX,	10, 14 x 20 8,00	Brass and Copper.—
In carboys or barrels, # D	Laufman's Apollo (Resquared), 1X,	IX, 14 x 20 7.50	Standard List25@30%
ennded when returned.		New Castle, S. Charcoai, 10, 14 x 20, 7,25	Troughs, Eave - See Eave
	Lion (Stamped), IC, 14 x 20 5.75 Luln, IC, 20 x 28 10.50 "IX, 20 x 28	New Castle Cole 1C 11 x 20. 6.85	Trucks, Stove— Improved Lock Frame, per dos\$15.00 Steel Lock Frame, per doz 18.00
Bols., about 500 b, * b	Maple, IC, 14 x 20 5.75	New Castle Coke, 10, 14 x 20 6.50	Steel Lock Frame, per doz 18.00 Daisy Improved Pattern, * dos 18.00
Kegs, about 110 b, & b	1C, 14 x 20	Palma, IC, 14x20	Wrought Iron Pipe
Yager's Soldering Salts.	National, IC, 14 x 20	1X, 20 x 28	14 and under, Galv
Large quantities, per D	New Castle Old Method, 1C.20x28.18.00	IX, 14 x20	1% and over, Galv
Spelter-	New Castle Palm, IC, 20x2814.50	New Castle Palm Charcoal, 12, 14 x 20, 6.50  New Castle, Charcoal, 1C, 14 x 20, 8.60 New Castle, Charcoal, 1C, 14 x 20, 8.60 New Castle, S, Charcoal, 1C, 14 x 20, 8.60 New Castle Palm Coke, 1C, 14 x 20, 8.60 New Castle Palm Coke, 1C, 14 x 20, 8.60 New Castle Palm Coke, 1C, 14 x 20, 8.60 New Castle Coke, 1C, 14 x 20, 8.60 Oak, 1C, 14 x 20, 8.60 Oak, 1C, 14 x 20, 8.60 Palme, 1C, 14 x 20, 8.60 Palme, 1C, 14 x 20, 8.60 Palme, 1C, 14 x 20, 10.60	Casing, list Nov. 16, 1892
Transport 460446	Oshorn's Old Process, IC, 20 x 2814.06	Walnut, IC, 14 x 20	1892
Stove-Pipe. See Trucks	Osceola, Old Style, IC, 14 x 20 7.20 1X, 14 x 20 8.76	Imported Terne Plates Charcoal,	Zinc-
Stove Trucks—See Trucks, Stove,	IC.20x28,18.96	MF Grade, IC, 14 x 20	Zinc- 600 b casks w b 5. Per b
		od's Hardware stock,   warehouse	e in the rear of their store

### It Is Reported-

#### Alabama.

That Park Johnson & Co., SELMA, have dissolved.

#### Illinois.

That Benjamin Broughton and Frank Taylor of DE KALB are negotiating for the purchase of a Hardware stock at Lake View, Iowa.

#### Indiana.

That an accumulation of natural gas under the floor of James Galbreath's Hardware store, at Swazel, caused an explosion early on the morning of the 8th inst., that blew the front part of the building into the street.

That E. Sell of Kentland has sold his Hardware store at that point to Hugh Gainor of RAUB.

That J. F. McNear, Hardware merchant Country Count

chant, Columbia City, has gone out of

#### lowa.

That County Auditor C. M. Doxsee has purchased the H. J. Winkie Hard-

ware stock, at Algoma.

That F. J. & W. M. Anderson of
Mitchell County have purchased the Hardware stock of Davis & Zimmer-

man, Jefferson.
That W. C. Gerner, Hardware and Implements, Barnham, has sold out to

P. M. Jenks.
That Wilson & Nelson, Wirt, dealers
in Hardware and lumber, have sold out

That Hill & Haskett, Hardware dealers at Earlham, have sold out to W. M. Clark & Co., who have decided to add a line of turniture to their bus-

Kansas.
That Mr. Brill of Wamego has pur-

at NORTH TOPEKA.

#### Louisiana.

That the Southern Hardware Company, Monroe, have been incorporated, with I. Baer as president and S. Marx as secretary and treasurer. The capital stock is \$10,000.

#### Maine.

That Charles H. Clark, in the Hardware business at Kennebunk, has sold out to John W. Lord & Co.

#### Massachusetts.

That the Peirson Hardware Company, PITTSFIELD, are making extensive improvements in their store.

That W. W. Lydston, MERRIMAC,

has been succeeded by the Amesbury Hardware Company.

#### Michigan.

That Hnll & Co. have bought the Hardware stock of R. J. Clark, at Port HURON.

#### Minnesota.

That W. H. L. Donaldson of Preston has sold his Hardware stock to Kinsella & Rockwell of PLAINVIEW, Wabash County.
That Thomas Hall will soon open a

new Hardware store at St. CLAIR.

That Weinberg & Hagen have purchased the Hardware store of Nels Mikkelson, at New London.
That Hoppin Hardware Company,

DEXTER, are building an addition to the rear of their store 20 x 40 feet.
That Smith & Viesselman, FAIRMONT,

have purchased ground on which they will erect next spring a two story brick structure to accommodate their grow-

ing Hardware business.
That R. Rierson & Co., Hardware and Implements, Lyle, are making preparations to build a corrugated iron

store building.

#### Missourl.

That Chas. Morelock has bought out the business of Morclock & Son, KIRKS-

That W. R. Clark has purchased Mr. Lansche's interest in the Hardware firm of J. P. Lansche & Co., Troy. The business will hereafter be conducted under the style of Wright & Clark.

That Davis & Morrow, FAIRFAX,

have disposed of their business.

That the Ludlow Hardware firm of Phillips & Haley have disposed of their stock.

#### Nebraska.

That the firm of J. H. Stewart & Co., BLAIR, have been dissolved, E. A. Stewart retiring. The business will be continued by J. H. Stewart under his own name. This is the oldest Hardware house in BLAIR, having been established by the corby 70°s J. ware nouse in Blank, naving been established in 1869. In the early 70's J. H. Stewart began his apprenticeship in the business and early became a partner, and for many years past has been its managing head.

#### New Jersey.

That G. A. Myers & Co., wholesale and retail Hardware, PATERSON, have dissolved. George Christie succeeds.

#### New York.

That the store house of George Barr, Hardware merchant, OGDENSBURG, was destroyed by fire on the 4th inst. Loss, \$10,000.

That Thomas H. Parker, dealer in Stoves, BINGHAMTON, has sold out.

Ohlo. A. Fillmore, Hardware That W. A. Fillmore, Hardware merchant, Zanesville, has removed to new quarters.

# THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, November 24, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK	
PHILADELPHIA	220 South Fourth Street.
BOSTON	146 Franklin Street.
PITTSBURGH	. Room 509 Hamilton Bullding.
CHICAGO59 I	Dearborn Street, cor. Randolph.
CINCINNATII	Rooms 22-24 Pickering Building.
ST. LOUIS	Bank of Commerce Building.
CLEVELAND	

BRITISH AGENCY: The Ironmonger, 42 Cannon atreet, London, England.

Index to Reading Matter ...... Page 56.

#### Cost and Competition.

Au old tradesman remarked that competition would be less severe if actual cost was better known. The truth of the statement needs no defense, and it is quite probable that more would be gained by educating cut rate competitors than by fretting over lost contracts. A short time since prices were so demoralized in a certain locality that no dealer could see any light ahead. One, more aggressive than the others, sent word to all to meet at his place a set evening to discuss an important matter. He found a good attendance, and by means of his account slips he showed the cost for time and material, well inside of a safe business profit, required for several kinds of work which all were doing. By this method some were for the first time made aware that they were in error in the prices they thought they could afford to quote. The meeting brought mutual confidence and respect where distrust and bitter feelings had prevailed. A resolution was passed in which all agreed to look carefully into their work and charge a uniform advance for profit and to continue the practice for one month regardless of results, which were to be reported at the subsequent meeting. Now, the system of carefully calculating cost has been firmly established there and the methods of some which were imperfect have been remodeled. Competition still continues, but, as all have a good idea of the actual cost, it does not result in a loss. Furthermore. better work is being done and better material is being used than formerly.

Deposits from Water in Kitchen Boilers.

The deposits from water may be tron blesome in many places, and most people are at a loss to understand how they occur. All cold water absorbs

the atmosphere always contains a small percentage. When water thus charged with carbonic acid runs over lime or magnesia, or filters through earths containing these materials, it dissolves portions of them. When heated, the carbonic acid is driven off from the water: and as it is only by virtue of the presence of this acid that water can dissolve carbonates of lime or magnesia, these then resume the solid state, and, adhering to metallic surfaces. form a scale almost precisely as tartar forms upon neglected teeth. It follows that if water be first heated before being fed to boilers, or if by chemical means the carbonic acid can be expelled and time for the precipitation of earthy matters be allowed, the water will not thereafter form a mineral scale. While feed water heating is practicable for power boilers, it is not usually so for kitchen boilers or for heating boilers. In places where only a hard water supply is available, it is better to use such forms of boilers for each of these purposes as will admit of access to their interiors for cleaning. Some waters contain vegetable matter which forms a scale, or which, at least, mingles with the mineral scale. The latter is normally white or nearly so. If it be mixed with matter of vegetable origin it may have a dark color, often resembling chocolate. Recently a large quantity of this kind of scale was taken from a power boiler in New York which was fed by water pumped from the Hudson River.

Unreliable Industrial News.

In these times when the news printed in the daily press, and particularly that relating to industrial matters, is so highly colored one way or the other, according to the political beliefs of the papers in question, it is wise not to put too much faith in printed statements to the effect that this or that establishment has started up after a suspension of anywhere from three months to a year and will run to full capacity right along. Again, it is not always best to accept as truth the statement appearing almost daily, that on account of the resuit of the recent elections wages at a certain establishment have been advanced 10 per cent, or even more than that amount. Two cases that came up in Pittsburgh last week well illustrate the point in view. One was to the effect that a prominent bar iron concern had voluntarily increased wages of their puddlers 10 per cent., and the papers that train with the party that won such a victory recently took oceasion to make a great ado about it. The other was to the effect that a large tube con-

carbonic acid gas from air, of which f cern, whose plant had been entirely closed for six months, would resume at once, giving employment, some accounts stated, to 1000 men. The reaumption was attributed entirely, of course, to the recent elections. Investlgatlon proved, unfortunately, that the firm credited with giving their puddlers an advance of 10 per cent, knew nothing about it, and the item was what is commonly known as a "fake." The tube concern in question have been closed for some time, but have put on a few men to get out some special work, and whether they will continue to run in part or not, depends on their getting some orders, which, up to this time, they have not received. Only a short tlme ago a communication was received from a concern building rolling mill and tin plate machinery, requesting that no attention be paid to a statement that was being industriously circulated to the effect that they had received an order for the building of a tin pla'e mill, all on account of the "great victory." While it would be a very great pleasure to chronicle news of this kind, stripped of its polltical features, investigation proves too often that its only foundation is in the brains of some imaginative reporter.

New York City's Refuse.

In another part of this issue we print an abstract of the interesting report of the New York City Garbage Commission who have recently made an exhaustive inquiry into the systems of garbage disposal pursued in other cities, with the view to adopting the best practicable method in this city. The crying need of a change in the existing method of disposing of New York City's refuse by dumping the whole mass in the ocean has become so insistent as to forbid any further delay in the adoption of some better system, if the health of the community and the comfort and well-being of the neighboring seaside resorts are to be maintained. The question of filling up the harbor channels with the dumped garbage has became, too, quite a serious one; and this reason alone should be sufficient to move the city authorities to prompt action. If, as seems demonstrable, the city's refnse can be not only disposed of, but disposed of at a handsome profit through the medium of reduction works, the sooner such works are put in hand the better.

Under the new tariff law any dutiable article can be manufactured in bonded warehouses, instead of only the few allowed under the old tariff. The new allowed under the old tarlff. The new regulations governing bonded manufacturing warehouses have just been issued by the Treasury Department.

# THE LETTER BOX.

#### Corrosion of Iron Pipe.

From W. II. F., Washington Depot, Conn.—Please inform me through the columns of The Metal Worker which will corrode iron pipe the quickest, letting the water run continually, draining the pipe or letting the water stand in the pipe?

Note. - Our correspondent has not asked au easy question. Practice varies in the care of boilers in the summer in which the same problem is involved. Some engineers leave the boiler full of water, and others drain it completely. If a boiler or the piping be left full of boiled water it would probably corrode less than if left in any other way. Or if the piping be drained and dried and kept closed so that damp air will not pass through it will also not corrode. If ordinary water be left in it the air in solution will have a considerable effect in promoting rust. Boiled water, of course, is free from air and is therefore less corroding in its effect. This is a question, however, that can be discussed to advantage by the practical readers who have tried the several methods. We have no doubt that opinions will vary as to the plan to be followed.

#### Water Front Hinders Baking

From W. D. B., Southampton, N. Y.—Replying to the inquiry of "S. & S." of Massachusetts in The Metal Worker of November 10 regarding a water front for a No. 8 range, would say I believe the difficulty is caused by the water front not fitting into the fire box perfectly. Let your correspondents take some asbestos furnace cement and point up all the joints inside of the fire box and the pipe holes in the stove where the circulating pipes connect with the water back, making sure that they are perfectly tight. Then, if they will use nut coal in the range, I believe it will work as well as it has ever worked.

# Hanging Gutters on High Buildings.

From J. R. S.. West Fairview, Pa.— I should, and I know others would, like to know the best methods, or those usually followed, of hanging gutters on high buildings. There are barns in this locality that are 40 feet to the eaves, having slate roofs, with a fall of 8 inches to the foot, that are not provided with snow guards. The question is, how to hang gutters on these high buildings without the use of ladders, which requires very heavy work.

Note.—It is evident that the hanging of gutters on high buildings is attended with more or less difficulty. When a barn is being built, and scaffolding is

used, the tinner could take advantage of the circumstance by placing the gut. ter in position before the scaffolding was removed, thus avoiding the labor connected with the use of ladders. Cornicemen and painters often use a swinging staging for their work, but the method would hardly be applicable to hanging gutters on barns on account of the labor involved in securing the staging and changing its location in order to fasten the gutter. If there are any of our readers who have used a method for hanging gutters on high bulldings that is especially convenient, we should be pleased to have them inform our correspondent through the columns of The Metal Worker.

#### Sheet Metal Launch.

From W. C. B., Newark, N. Y.—I notice in The Metal Worker of November 10 an account of the sheet metal launch made by Louis Giclas, Washington, D. C. The picture pleases me very much, for I have been thinking strongly of building one for myself. If Mr. Giclas does not think me inquisitive, I should like to know what the engine cost and what make it is, and trust he will supply this information through The Metal Worker.

#### Cleaning Solder.

From W. D. V., Southampton, N. Y.—I have about 150 pounds of solder that I cannot use. It seems to have zinc in it and I have tried to burn it out with sulphur and eat it out with acid, but have been unsuccessful with both experiments. Ususlly I have had no difficulty in cleaning it with sulphur. Perhaps some other metal is mixed with it. I should be glad to have any suggestions as to a method of finding out what this metal is and also how to clean the solder.

#### Fossil on the Rampage.

From Fossil.-I regret that " Progwhose letter was published in The Metal Worker of November 17, did not give us his valued counsel earlier so that we could have tried a few gross of stationery rubber bands in our ram experiments. Judging by our experi-ence one would last several minutes. I have an impression that the waterways in a working valve are constructed to produce that rotary motion which "Progress" would check; also I fail to see the point of his "sucker" illustration. The sucker's action results from atmospheric pressure, but our valve was inclined to stay up rather than down, and needed a little help on the drop which neither a spring nor inert weight seemed to furnish. The hinged board has a rebound that does the business, and although it may be a "backcountry idea," it gets there just the

#### A Well Problem.

From C. F., Tennessee —I have a customer living on high ground whose well and elstern are about to give out. He comes to me to make him a tubular or driven well, and I don't know how. The well, or pump, will have to be from 80 to 100 feet in depth. I can easily have a hole bored from 8 to 18 inches in diameter down to the sand; but what shall I do next? The ordinary bored wells are common here, but this man wants a pump, with a point to the tube driven down in the sand. Please help me out.

Answer. - Our correspondent is not as precise as we could wish for a proper understanding of what is wanted. If the well now giving out is to be used a matter of only a few feet deeper will restore the water supply. This is a common trouble with wells throughout the country that have been dug in an ordinary or wet season, and become too low or entirely dry in a time of drought. The reinforcement of such wells is deacribed and fully illustrated in our issue of July 21, 1894. If our correspondent is to make a new well, then after the hole is bored with an open end tube to the desired depth and into the waterway to a depth sufficient for a permanent supply, a deep welt pump may be inserted, with its pump chamber within 10 feet of the hottom, the hottom acction made into a point and atrainer the same as for driven wells. The point and atrainer can be pressed down as far as possible below the bottom of the outside casing or tube, so as to give free access of water to the strainer. If this is not deep enough to clear the bottom of the outside tube with the strainer, the outside tube can be drawn up a little to give the necessary clearance. If very coarse gravel is met at the hottom in the waterway, no driving of the point will be needed. We think that this, with a perusal of our illustrated article on the reinforcement of deficient water supply in wells, will make the question clear to our correspondent and enable him to accomplish the work.

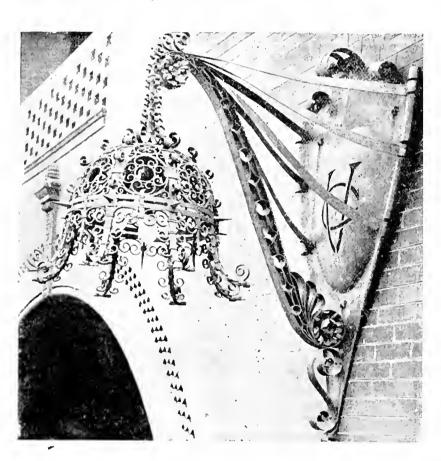
The returns of the United States Burcau of Statistics show a large increase in exports of domestic merchandise for the month of October as compared with September. The exports during October were \$82,291,250, against \$57,811,037 in September. The total exports during the ten months ending October 31, 1894, have been \$644,570,000, which is about \$28,000,000 less than the figures of the first ten months of 1893. The excess of exports over imports in the same period has been nearly \$97,000,000. This fact is regarded as providing a safeguard against any extensive loss through gold exports in the near future.

#### The Anthracite Situation.

Rumora have been very plentiful recently, says The Iron Age, concerning aharp cuts in prices of anthracite coal to the line trade. The circumstances are somewhat complex. When the bituminous coal strike occurred this summer the anthracite interest expected a sharp increase in the demand. This did not take place to the extent expected, the estimated increase in tonnage having been only about 1,000,000 tons. The anthracite interests were slow to recognize that the added demand was not as great as expected, and continued to mine large quantities. Production was not cut down sufficiently. When October arrived the sales agents reluctantly attempted to meet prevailing con-

rangement under which they receive 60 per cent. of the selling price of coal at tidewater, for their coal on cars at the mine, the coal being handled by the Lehigh Coal Company. As a minimum \$3.25 at tidewater for stove coal is fixed in the contract.

Now, by far the greater part of the coal mined by the individual operators goes to tidewater, although fully two-thirds of the authracite coal mined does not go in that direction. It will be readily understood that the leading rail road interests, with whom tonnage is the first consideration, may find it to their advantage to permit an overstocking of the tidewater markets and a corresponding decline in prices, because the coal mined by the individual operators must bear the greater part of the burden.



ELECTRIC HANGING LAMP.

dltions. One large interest agreed to the allotment made for that month and yet broke its pledges a few daya later. Another interest which was supposed to have given its adherence verbally fell back upon the ambiguous assent given to justify independent action. In the mean time tidewater prices crumbled away under the pressure to dispose of surplus product. At the same time the leading interests attempted to recoup by advancing prices to the line trade. This brought about the vigorous protest on the part of the individual operators of whose action so much is now printed in the newspapers.

It is estimated that about 30 per cent. of the total amount of anthracite coal produced is mined by individual operators, the majority of whom ship over the Lehigh Vailey Railroad. The largest of these individual operators are Cox Bros. & Co., who, however, have special arrangements with the railroads, because they haul their coal to tidewater with their own engines, cars and rain crews. The others have an ar-

Every one of the great coal roads has its line trade which it controls more or less completely. For that trade the company coals are reserved and the deliberate attempt has been made to make this line trade pay a higher price for the coal than is paid in tidewater markets. The injustice of such a proceeding, both to the individual operators and to the consumers along the line, is flagrant. It has led to the demand on the part of the individual operators upon the Lehigh Valley road to make prices to the line trade harmonize with those at tidewater. It has led to the report that Coxe Bros. & Co. will sell their coal on the basis of price f.o.b. mine.

So far as we can learn the struggle is one which will not very materially sffect the cost of production of iron by those manufacturers who largely use anthracite as a fuel.

"Technical instruction for butchers" is the latest development in trade education in England.

#### A Trick of the Trade.

ву в вміти.

The place where I worked was one of the kind that turned nothing away that came, and in the blacksmith shopthe boss held forth and was not very often laid out. A big steamboat used to run from our town every day lying there all night. One night she was away behind time and it was found that a nut on a 3 inch rod, connecting the engine with the walking beam, had split and the engineer was afraid it would not last till he landed. When he arrived there were no tools in our town to duplicate the nut and he was in a dilemma what to do, and didu't see how he could make his trip for a day or two. The boss heard of it and went to see the break, then told the engineer that if he would let him have that nut he would mend it so he could use it the next day, when it would be stronger than ever. The engineer didn't believe it and wanted an explanation, which the bess wouldn't give, and as the engineer had little to lose he concluded to let him try it, going to the shop to see the job done. A band was made of good iron that fitted the nut tight when white hot after the nut had been heated and closed. The band was driven down on the nut and cooled by a plunge in water and as the band was heavy the nut was stronger than ever before and rendered service for years

One day a traveling "jour" asked for a job, seeing that our shop was busy, but the boas did not want him. The "jour" stayed and talked and showed that he was a bright fellow, and the boss rather liked him; told him the history of his favorite pair of tongs; showed him how nice they worked and talked with him considerably. He asked the "jour" if he could weld three pieces of iron together in one weld at one heat without help. The "jour" said that was too much for him, and the boss said if he could have done that he would have hired him anyhow. The boss asked the "jour" to dinner, but he seemed embarassed at his inability to do the test job and would not go. When the boas came back from dinner he found his favorite center punch welded to the jaws of his favorite tongs, which were hanging over the horn of the anvil with the rivet cut out -three pieces of iron welded at one heat at one place without help. The boss cussed, then owned up beaten, and if he could have found the fellow he would have given him a job; but evidently the "jour" concluded that the boss would heat a welding heat should they meet, and got out of town as soon as possible.

#### Electric Hanging Lamp.

We here illustrate an electric hanging lamp made for the Union Club of St. Louis by the Ludlow Saylor Wire Company of that city. This lamp la made of wrought iron and given the Bower-Barff finish, which renders it absolutely rust proof. The design of the lamp was furnished by the architect, T. C. Link.

Taking silver—the heat conductor known—as 100, for the ratio in which heat passes through it, the other metals stand in comparison as follows: Copper, 73.6; gold, 53.2; brass, 23.6; zlnc, 19.0; tin, 14.5; iron, 11.0; atcel, 11.6; and lead, 8.5.

# PLUMBING and GAS FITTING.

## The Eastern Supply Association.

A meeting of the manufacturers of and dealers in plumbers supplies in New York and adjacent States was held on Tuesday and Wednesday, the 20th and 21st insts., at the Imperial Hotel, New York City, for the purpose of forming an association to take charge of all trade matters and to work in harmony on questions of importance in connection with the plumbers' supply trade. The new association was named the Eastern Supply Association. The following officers were elected: Presi-

bodies, which will determine all questions of importance affecting the trade in general.

#### A Novel Shower Bath.

The illustration herewith given shows a novelty in shower baths which has just been brought out by Thomas Kelly & Brothers, 124 Franklin street, Chicago. It consists of a perforated ½ inch pipe, formed into a circle 8½ inches in diameter, and connected with the bath cock by a piece of hose as usual. The temperature and pressure of the water are regulated by the combination bath

a thousand-dollar bond, but this, it is pointed out, will prevent many skilled but impecunious plumbers from doing work. The ordinance was amended to make the bond \$250, but even after this amendment the enforcement of the ordinance was indefinitely postponed.

# The Mosely Suction and Force Pump.

The Mosely Folding Bath Tub Company, 161 South Canal street, Chicago,

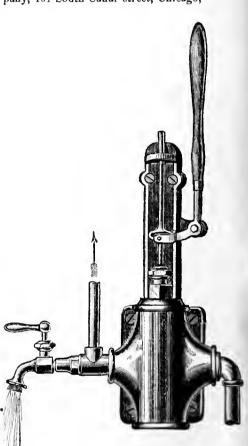


A Novel Shower Bath.

dent, John Reid of J. L. Mott Iron Works, New York City; vice president, B. T. Salter of Owen & Salter, Philadelphia; secretary, Edward W. Low of New York City; treasurer, B. Frank Hooper of Colwell Lead Company, New York City. A majority of the manufacturers and dealers have, it is stated, already joined the association, and it is expected that a still larger number will at once give in their adherence to it. The association embraces the States of New York, New Jersey, Connecticut, Pennsylvania, Maryland and the District of Columbia. The association, it is announced, will work in harmony with the two associations which have already been formed in the West and in the extreme Esst. A National Committee will be appointed, composed of three members of each of these three

cock and then turned off at the outlet cock, the side of the tub being broken away in the illustration to show the arrangement. The ring is then placed over the head and the water turned on and off by means of the single cock at will, without danger of being scalded with hot water or shocked with cold as is the case in using the ordinary shower. The arrangement here adopted avoids wetting the walls and tloor, which is a fault of the overhead shower bath, and it also enables a shower bath to be taken without wetting the head. The ring is made of brass and nickel plated.

THE LICENSINO OF PLUMBERS in Scattle, Wash., is occasioning some discussions in the Board of Aldermen of that city. It appears that the ordinance requires that every plumber should give



The Mosely Suction and Force Pump.

Ill., are offering the suction and force pump here shown. The pump has an iron enameled cylinder, with two chambers lined with block tin to prevent corrosion. The trimmings are of brass, with a wood handle, and the valves, it is explained, are easy of access. The pump is quadruple acting, with oscillating movement. It is pointed out that the action is easy and direct, with a short stroke, and that it has great efficiency for the energy expended. The makers state that the pump, style No. 1, with a 1½-inch auction and ½ inch discharge, has a capacity of 8 gallons per minute, a continuous stream, and that when used in connection with their heater and folding bathtub, either direct or to a supply tank, it is next in convenience to a city water service. It is further stated that the pump is well adapted to forcing water in buildings where the elevation is too great for the pressure from street mains, and also for fire protection.

#### The Simplex Lead Pipe Cutter.

The Simplex lead pipe cutter, which is herewith illustrated, is made with a blade of tempered steel, ground to a sharp point, with keen edges. The shape of the blade is indicated by a dotted line running across the pipe in The curved jaw of the frame the cut. extends around the pipe while the blade is moved up and down in the slides by the action of the binged levers between the handles. A slight pressure suffices to puncture the pipe, after which, in the progress of the cut, the blade cuts entirely from the inside outward, as it could not do otherwise owing to its shape. Thus the pipe is not crushed or bent and the ends do not need to be reformed or chamfered. Cutting by such a tool is vastly superior to sawing, as



The Simplex Lead Pipe Cutter.

there are no chips or shavings left in the pipe to injure valves or faucets. It is easily seen that the shape of this tool adapts it to work close to a wail or ceiling or near a corner. A small pipe can be cut with one hand. The weight of the tool is 13 pounds, and the length is 15 inches. It is offered for sale by the manufacturer, Robert D. Wardwell, 1359 West Jackson street, Chicago, or by dealers in plumbers' supplies.

#### TRAPS AND VENTS.,

JOHN TROLAND of Norwich, Conn., known to plumbers by the papers be has prepared for his State conventions, has a large snow shovel in his store bearing the following inscription in white chalk: "Only 75 cents; reduced from \$1 since election owing to the atorm.

THE VANDERMAN PLUMBING & HEAT-ING COMPANY, Willimantic, Conn., carry a large line of steam fitters' and plumbera' supplies, and have machinery for cutting and threading large pipe. They also have a well equipped machine shop for turning out the special tools in-vented by Wm. Vanderman. Their steel tool chests for plumbers and ateam fitters are growing in popularity and demand. Their pipe benders, asbestos gaskets, combination vises and pipe cutters have become standard goods and arc taxing the capacity of the plant. Another of Mr. Vanderman's productions that has met with special favor is his plumbers' estimate and list book. It is made in two sizes, for the pocket and for the office. They help the plumber to remember everything in his estimate, and furthermore give a record of all prices quoted for work. Those who have tried these books have duplicated their orders in some cases several times. A new catalogue is being sent out with illustrations and descriptions of these York Trade School, licensed plumber

goods that can be had on application. The Duplex steam and hot water heater made by the company has been used in the vicinity of Willimantic with results that have increased the sales this

A North of England plumber writes to a London contemporary as follows: "In a country district not far from here a gentleman has erected a house of ease close to a well frequented footpath through some fields near his residence. Inside is a large box of dry earth, and the following notice is put up in a conspicuous place: 'Gentle wayfarer, when vou have done kindly sprinkle some ashes over the faithful departed, and go your way in peace and thankfulness. There are very many places in this country where similar conveniences would be greatly appreciated, and if the sound sanitary advice given above were fol-lowed no nuisance need follow." This is rather unique.

BURGESS SOLDERING FURNACE COM-PANY, Columbus, Ohio, owing to the increased demand for the Gem soldering furnaces have been compelled to seck larger quarters, and for 30 days past have been busily engaged installing new machinery and fitting up their new shops, which are now about completed, enabling them to produce the goods both more rapidly and economically than ever before. A number of new styles have been added, so that they are now in position to meet nearly every requirement for a fire pot.

A TABLE given in a recent issue of the *Pioneer Press* of St. Paul shows the increase in the plumbing permits issued during the past six months as compared with those issued in the corresponding months of 1893. In round figures the month of June this year shows an inmonth of June this year abows an increase of \$1000 over last year; July, \$10,000; August. \$22,000; September, \$3000; October, \$3000, and November, up to the 8th, showed an increase over the whole month of November of last year of about \$3000.

W. B. Armistead is to remove his plumbing shop and feed store at the corner of Second avenue to South and Twelfth atreets, Fort Dodge, Iowa.

THE COMBINATION GAS MACHINE IS the subject of an advertising card sent out by the Detroit Heating & Lighting Company of Detroit, Mich. The back of the card gives a sectional view showing the tank arrangement and location as well as the apparatus in the basement of the house. Its merits are briefly re-

PLUMBING INSPECTOR DUNN has reported to the Board of Health of Kingston, N. Y., concerning the sanitary condition of the public schools of that city that the ventilating arrangements are entirely inadequate to afford a sufficient supply of fresh air.

WE LEARN from a Detroit local paper that the plumbing examiners have completed their work for the time being, Chairman Meathe saying that there are no more plumbers in the city to be examined. Altogether 150 plumbers have been examined, and all but about 20 have received certificates.

THERE has been a change in the plumbing firm of W. B. Davis & Co., Anderson, Ind., J. R. Rotherford and W. B. Davis having sold their interests to J. M. Maynard and J. M. Donnelly, J. L. Williamson still resists his place; the firm tains his place in the firm.

and gas fitter, Norwich, Conn.," is the card presented by the newest plumber In that city. He has a large showroom and ample shop space, and, better still, has enough work to keep him very busy.

F. llor-rail. has removed his plumb. ing shop to the Y. M. C. A. Building, New Britain, Conn.

J. J. FAY, Willimantic, Conn., is one of the busy plumbers of New England.

THE PLUMBING SUPPLY HOUSE OF Frank J. Knox, Hartford, Conn., was a busy place on Thursday of last week with new vitreous ware coming, iron pipe going out and plumbers supplies of every description being assembled for shipment. A good trade has been established by his efforts to please the plumbers.

THOMAS LANGDON, Hartford, Conn., has a fine custom trade in high grade plumbing that keeps his force busy. He finishes bathrooms with tile floors and walls, and fits them with enameled baths, handsome lavatories and closets. Remodeling old work is a specialty with him.

R. T. Allen, who for 14 years has been in Chicago, has gone to Bangor, Maine, and opened a plumbing store at 8 Franklin atreet.

GEORGE H. McCalmon has rented a store in Goodwin's Block, Biddeford, Maine, where he will carry a full line of plumbing goods. Mr. McCalmon is apoken of as one of the best plumbers in that ueighborhood.

PATENT CHAIN Вкоск'я WRENCH is illustrated and described in a circular issued by Curtia & Curtis, Bridgeport, Conn. The circular also gives a table of prices, dimensions, &c., of the five different sizes.

THE MASTER PLUMPERS of Neenah, Oshkosh, Fond du Lac, Green Bay, Marianette, Menominee, Oconto and Appleton held a meeting at the Sherman House, at Appleton, to discuss plans for the completion of a Wisconsin State organization. A committee was appointed to set forth the object of the association in a circular letter to the plumbers all over the state and summon them to a convention to be held sometime during the winter. One of the purposes of the organization will be the securing of the passage of a State law requiring the appointment of plumbling inspectors in cities and the examining and granting of licenses to plumbers.

THE STANDARD GAS COMPANY have been incorporated at Saco, Me, by L. E. Gatcomb, Albert Hartman and George B. Irish, to manufacture and deal in gas regulators, fixtures and meters.

THE AMERICAN PORCELAIN COM-PANY have been incorporated at New Brighton, Pa., by Thomas E. Marshall, Frank S. Reader, Thomas Craven and Willard S. Read, for the purpose of manufacturing sinks, wash trays and other articles made of clay.

THE WILLIAM VANDERMAN PLUMB-INO & HEATING COMPANY, Willimantic, Conn., publish an illustrated catalogue and price list of the various specialties of their manufacture. The front page of the catalogue presents a portrait of Mr. Vanderman, who is well known to the heating and plumbing trade through-The goods illustrated out the country. The goods illustrated and described include his expansible water closet connecter, combination compass and washer cutter, tool chests, pipe cutters, pipe benders, combination

vises, lead joint runners, radiator trucks, union elbow connecters, lead pipe holders, lead pipe former and sizer. &c. All the goods are illustrated, thoroughly described and prices given.

Chas. Thatcher & Co., Waterbury, Conn., are progressing finely with the work on Section 2 of the work of extending the water works system and increasing the water supply. Their contract calls for laying 3 miles of 36-inch cast iron water pipe and testing it under a pressure of 150 pounds to the square inch, which is equal to 80 tons on the plugs placed in the ends of the pipe. The greater part of the trenches have to be made in solid rock, and in some places the cuts are 30 feet deep. Air outlets and blow-offs are placed at all high points in the piping to prevent the pipes becoming air bound. The work will be completed shortly after the first of December.

A NOTABLE JOB of plumbing in these days is being done in the residence of T. M. Cox by S. E. Dibble of New Ifaven, Conn. In order to get a modern plumbing system in this house, which was built some years ago, without cutting the timbers so as to weaken them, 4-inch lead soil pipe is used to receive the discharge from the closets and other fixtures. In making the different necessary connections, more than a dozen joints have been made. The work is such as any plumber might be proud of, and a glass floor could be used with propriety to show it off.

Manufacturers of brass goods, such as bibbs, stops, cocks and valves, will find at the Steele & Johnson Mfg. Company, Waterbury, Conn. a large variety of brass washers, spring washers, small screws, and all the small parts that are made of brass and used in the construction of such goods. They make a specialty of this branch of brass work and are prepared to quote prices on application from the manufacturing and supply trade.

A NEW PLUMBING AND HEATING ESTABLISHMENT has been opened in the Opera House Block, Fulton, N. Y., by Buell Brothers.

GREEN & ALLEN is the name of a new plumbing firm who have begun business in the Jeffries Block, Janesville, Wis. They have fitted up a handsome store, displaying bathtubs, closets and lava tories, and at the rear is the workshop. The members of the new firm are F. E. Green and John Allen, who were formerly at Escanaba, Mich., where they had been in business for ten years.

THE S. WILKES MEG. COMPANY, 113-123 Clinton street, Chicago, have received an order for five hot water heaters for Denver, Col.

The Engineer mentions a new bronze that has lately been introduced in France, which, it is claimed, is much superior to manganese bronze or phosphor bronze. Roma, which is the name by which it is known, contains copper, phosphorus, tin, aluminum and manganese. It is a pale yellow, has a specific gravity of 8.5, and melts at a temperature of about 1000 C. As it does not corrode in sea water, and is not magnetic, it is preferable to steel for the hulls of steamers. It is said to have shown a strength of 24½ tons per square inch for castinge, 31 tons for forgings and 35 tons for rolled metal; all of which is certainly very extraordinary. Possibly the cost of it is so high as to prevent its extended use.

## HEATING & PLUMBING.

### NEW WORK AND CONTRACTS.

THE CITY COUNCIL of Milwaukee, Wis., has awarded the contract for a new steam heating plant in the City Hall to the Hernedeen Mfg. Company, Milwaukee, at \$11,000.

J. H. DUFFY, Portland, Me., is engaged on the plumbing work in the new Brown Block.

ALLEN & WARD, Athol, Mass., have the contract for putting in the heating apparatus in the new Pequoig House.

JOSEPH DUODALE, East Norwalk, Conn., has received the contract for the plumbing work in the house of Marvin Brothers.

II. HOTELING, Chicago, has completed the work of placing the steam heating plant in the Hotel Whitney at Columbus.

THE HARTFORD HEATER COMPANY, Hartford, Conn., make a specialty of hot water heating, using their Hartford and Little Gem hoilers. They have installed plants in the residences of W. L. Camp and A. L. Dickerman, and the Gilbert Home School, at Winsted; in the residences of C. M. Spencer and H. A. Phelps, at Windsor, and in the residences of Mrs. Gates, Hartford; H. O. Wilcox, Simsville. and two boilers for T. H. Woodruff, Thomaston.

THE CONTRACT for the plumbing, gas fitting and sewer work required in the school building at the corner of Collingwood and Nineteenth atrects. San Francisco, Cal., has been awarded to William F. Wilson.

R. S. Sholes, JR, Norwich, Conn., bas the contract for the plumbing in the saloon of W. Franklin, and will use three water closets and urinals.

J. R. BLATCHFORD, Kankakee, Ill., has the contract for heating the old portion of the County Poor House.

GEO. M. ELLIS, Norwich, Conn, will use Volunteer boilers in the following heating contracts which he has secured: The Sweedish Church and the residence of R. Higgins and the residence of Dr. Jennings, at Jewett City.

A. H. SQUIER & Co., Scranton, Pa., are using a Page safety sectional boiler in heating the Clarke Building in that city.

F. B. AIKEN has the contract for the plumbing in the Knowlton cottage on Church street, Elsworth, Me.

The STEAM HEATING CONTRACT for the new Scovill Memorial Library at Salisbury, Conn., has been let to the S. H. Beard Company, New Britain, Conn.

WM. BLEVINS, Hartford, Conn., is heating three greenhouses for A. L. Whiting, West Hartford, Conn., using the Caswell hot water heater. A. Thatcher combination heater is being set in the residence of J. S. Quinu, Hartford, and an Allen steam boiler is being placed in the residence of the Rev. John Conway, at Winchenden, Mass. He also has the contract for remodeling and extending the heating plant in the large dry goods store of C. Fox, Hartford, and the additional floors and extension that are being built to it.

LINDLEY & MEREDITH, Bennington, Vt., have the contract for heating the Bennington County Court House and Jail and are using two Volunteer steam boilers.

THE JOHN DAVIS COMPANY, 69-79 Michigan street, Chicago, are to install a steam heating plant in the Vulcan Iron Works, 86 North Clinton street.

Monaher & Breed, Norwich, Conn., are using a Springfield coil boiler for hot water in heating the residence of Wm. Matthews, at Greenville. They are using two All Right ateam boilers and 53 radiators in the Central Block, at Norwich.

A. B. SPROUL, New Haven, Conn., is using a Humber hot water boiler in the residence of J. Hemmingway, at Fairhaven.

THE WELLS-NEWTON-QUAY COM-PANY, Monadonck Block, Chicago, have the contract for the plumbing and steam heating in the New England Building, Cleveland, Ohio.

L D. SMITH. New London, Conn., is doing a fine job of plumbing in the residence of II. Lautller, erecting two lavatories, two baths and two closets, and is using a Pequot hot water boiler in heating the residence of Captain Hinkly.

THE HOPSON & CHAPIN MFG. COMPANY, New London, are installing Pequot boilers and hot water heating plants in the City Hospital at New London and in school buildings at Waterbury, Conn., and New Brunswick, N. J., and in a new bank building at the latter city. They will use their system of compound direct and indirect radiation.

GEO. L. ROOD, 79 Lake street, Chicago, has the contract for combination heating in the residence of M. Meeker, 125 Astor street.

NEWMAN & CRONIN, New London, Conn., are putting steam heating plants in the residences of E. A. Stedman and Giles Bishop.

MURRAY & MAHER, New London, Conn., are doing the plumbing in the residences of Perry Stone and F. Parmalee, and using Comfort ateam heaters in the residences of Miss Helloway and Dr. Blood. They are also doing the plumbing in the new City Hospital.

THE BAKER & SMITH COMPANY, 193-197 Van Buren street, Chicago, are to place a new steam boiler in the P. Hayden Estate Building, 49 Lake street.

L. MALLORY, New London, Conn., is remodeling the plumbing and installing a hot water heating plant in the residence of B. P. Leonard at Pequot.

The Vanderman Plumning & Heating Company, Wiffimantic, Conn., have completed the plumbing and are finishing the heating plant in the Normal School in their city. They have installed the Duplex hot water heater in the new residences of J. B. Lyons, G. K. Mason and John McDonough of Willimantic, and have installed the Duplex steam heaters in the residences of A. C. Scripture, Geo. Tiffany, W. H. Lutham, A. T. Fowler and Maitin Heverin, at Willimantic, and Addition Kingsbury, South Coventry. They have done the plumbing work in most of the above mentioned residences.

J. J. Wade & Son, 276 Dearborn street, Chicago, are to do the plumbing, gas fitting and sewerage in the residence of Thomas Mickolson, 3344 Vernon avenue.

ROBERT BROWN, Norwich. Conn., has the contract for using a Richmond

steam boiler for heating the residence of Captain E. Smith, and has heated the Dime Savings Bank with a Richmond hot water boiler. He is doing the plumbing in the residence of Geo. S. Palmer and in three houses for Morgan Williams.

E. BAGGOT, 169-171 Adams street, Chicago, has the contract for the plumbing, gas fitting and sewerage in the residence of A. M. Reece, 4319 Drexel boulevard.

M. J. Dally, Waterbury, Conn., has secured the contract for heating the new building for the missionaries of La Salette.

OLDS & WEIPPLE, Hartford, Conn., are doing the plumbing work in the residence of James Clark. The house is to be heated by an H. B. Smith Company's Cottage hot water boiler.

THE HAWTHORNE HOUSE, Winthrop, Mass., is to be fitted with new heating apparatus.

GEORGE E. BENZHAF, New Canasn, Conn., has the contract for putting a new furnace in the New Canaan Club House.

PAUL R. PATTEN, Salem, Mass., has been awarded the contract for piping and steam heating the Harrington Building on Essex street.

T. F. AHEARN & Co, New Haven, Conn., have taken the contract to put in the gas fixtures, including the metal ceilings, in the new café, to be opened in William Kachrle's new building on Crown street.

SEALED PROPOSALS will be received by the Committe on Public Buildings of the Common Council of Newark, N. J., until November 26, for the plumbing and heating work for the proposed new Second Police Precinct Station House. Plans and specifications of the work may be examined at the office of Henry C. Klemm, 240 Market street.

M. F. O'LOUGHLIN, Pittsfield, Mass., has the contract for plumbing the Smith Block, at the corner of Depot and North streets

SEALED PROPOSALS will be received at the office of the Supervising Architect. Washington, D. C., until December 14, for work on the United States Post Office Building at Canton, Ohio, including the plumbing, fixtures and connections. Drawings and specifications may be had from the Supervising Architect, Washington, or of the Superintendent at Canton, Ohio.

NICHOLS & MURRAY, Somersworth, N. H, have begun the plumbing work in the Free Baptist Church.

Joseph Buckley, New Haven, Conn., has the contract for the plumbing in the new nine-story First National Bank Building, for which Albert L. Webster, New York, was the sanitary engineer. The fixtures will be nickel plated and the work of the exposed character from Peck Bros. & Co. There will be 33 Henly wash down closets, 83 Erie lavatories and 30 urinals used, besides laundry tube, slop sinks and baths. The Durham system of drainage will be used. The gas pipe will aggregate 2 miles in length.

The Foskett & Bishop Company, New Haven, Conn., are extending the heating plant of the Hotel Beechwood, Summit, N. J., the verandas being inclosed with glass and will be heated, making about 10,000 feet of hot water radiation in the job. They are install ing hot water heating plants in three

achools, at West Haven, Conn., and have the work well under way of installing a steam heating plast in the Hublnger Block, at New Haven.

J. T. Kay, Meriden, Conn, is installing the heating plant and doing the plumbing in the Curtis Home, using two Bigelow horizontal tubular boilers with 3500 feet of indirect and 1000 feet of direct radiation. He also has the contract for heating the Liberty Street School and will use a New Economizer boiler and 2000 feet of direct radiation.

THE PECK WILLIAMSON HEATING & VENTILATING COMPANY of Cincinnati have been awarded the contract for heating and ventilating and sanitary work in the High School at Perrysburg, Ohto.

F. J. WHEELER, Meriden, Conn., is using a Magee combination hot air and hot water heater in the residence of Dr. Wilson, and has the same apparatus in both his store and his residence.

GEO. W. MINOR, Waterbury, Conn., is installing a Hub hot water heater in the residence of F. W. Wightman, and is using a Hub combination hot air and hot water heater in the residence of Wm. Miller. He is doing the plumbing in the residences of M. Cairns, Peter Skehms and Chas. Kempke.

DUGAN BROTHERS have been awarded the contract for plumbing the new house for James L. Newcomb, at Albany. N. Y.

THE CHAS. THATCHER COMPANY, Waterbury, Conn., are installing Gurney hot water boilers in the residences of Fred Illy, at Naugatuck, and C. A. Jackson, and a house of Frank Boos, at Waterbury. They have the contract for a Hecla steam boiler for the Hopeville, and have used a Capital hot water boiler in the parish house of Father Trainor.

THE PECK WILLIAMSON HEATING & VENTILATING COMPANY, formerly known as Bennett & Peck of Cincin nati, Ohic, have been awarded the heating and ventilating contract for hoth the new school buildings at McKeesport, Pa., by the Board of Education.

JOHN GALVIN is doing the plumbing work in the new block on Elliott street, Brattleboro, Vt.

THE NEW HAVEN HEATING & PLUMBING COMPANY, New Haven, Conn., are installing heating plants in the High School Building and the Insane Asylum at Middletown, Conn., and in the new Scientific School and Chemical Laboratory at New Haven they are erecting a plant on the blower system. They have the contract for a similar plant for the new First National Bank Building, in which they will use a Babcock & Wilcox horizontal tubular boiler.

W. A. HECKMAN has been awarded the contract for putting the steam heater in the Lewis Briner School Building, Fourth and Elm streets, Reading, Pa., at a coat of \$890.

THE COWLES-COUCH COMPANY, Hartford, Conn., are putting in a No. 9 Howard combination heater in the residence of H. J. Maerehlein and a No. 7 in the residence of L. E. Baker, both of Hartford. They have also just finished putting into the residence of F. P. Tracy of Hartford a No. 17 Howard double radiator warm air furnace.

THE WESTERN STEAM AND HOT WATER HEATING COMPANY, 67 West Washington street, Chicago, are to place

a hot water heating plant in the flat building of William Smith, 757 South Kedzie avenue.

THE DAVIS JOHNSON COMPANY, 45 Jackson street, Chicago, have contracts for warm air heating in the following residences: M. E. Baldwin, 260 North Clark street; Mrs. M. E. Kuhn, Roscoe and Evanston avenues, V. C. Chase, 2486 Commercial avenue.

MEUTZ Bros., 107 Twenty-second street, Chicago, have the contract for hot water heating in the residence of Judge Caldwell, Indiana avenue and Forty-third street.

J. H. DEVENEY, 2306 Cottage Grove avenue, Chicago, is doing the plumbing, gas fitting and sewerage in the residence of E. Foreman, Michigan avenue, near Thirty eighth street.

FRANK P. SCHUSTER, 234 North Clark street, Chicago, has the contract for the plumbing in the residence of W. H. Winslow, Riverside, Ill.

THE ALCOCK PLUMBING COMPANY, 102 Twenty-second street, Chicago, are overhauling and placing new plumbing in the residence of M. B. Craft, 6320 Madison avenue.

SEALID PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., till December 11, for covering steam pipes in the Government buildings at Brooklyn, N. Y.: Bay City, Mich.; Denver, Col.; Hoboken, N. J.; Kalamszco, Mich.; Louisville, Ky.; New Bedford, Mass, and Rochester, N. Y.

#### Correspondence Schools.

We mentioned last month, says Industry of San Francisco, the receipt of a number of publications relating to the "Correspondence Schools," at Scranton, Pa. Among these, and of most interest, are a large number of letters, nearly 200, written by students in respect to their experience and opinions of the system. It is the most original agency for technical education that has ever been devised, capable of an extension that has no visible limit, and portends a time when we will not set off a few of the most fortunate for education, but educate all up to the limits required in the application of the skilled arts. Ose effect will be to raise the standard of the ordinary courses in technical colleges and schools, because medioerity can be attained at a tithe of the expense and in ways more congental to most students. The habit of writing out exercises is a good one, good in all kinds of mnemonic effort, and when to this is added the interest of a communication personally addressed, and the environment of a home, it is easy to discern the attraction of a correspondence system. Among the papers mentioned is one sheet of examples in hydraulics that, as a collection of educational problems, is the best we have ever seen. When a set achool book is done, and the plates made, there is an end, but in the present system a tentative course is possible. Change and improvement can go on continually; not only this, the problems submitted can be nicely graded to the requirement and capacity of the student, and can, by the facility for change, be made relevant to particular examples or practice.

The Delaware & Hudson Canal Company have given notice that the canal will close for the winter on December 1. The past season is said to have been a very unprofitable one.

# STEAM AND HOT WATER.

# A Disciple of Sherlock Holmes.

Feeling aure that the following from the Boston Globs of November 12 referred to the well-known heating engineer, John Demorest, who represents the Pease Furnace Company, a call was made at 228 Franklin street, and on interviewing Mr. Demorest he acknowledged that he was the man who, on discovering that he possessed a better umbrella than he was entitled to, returned ucarly a block through a drizzing rain to leave his address with the stamp clerk, hoping that the owner would make inquiries. Mr. Demorest is a good example of the reliable men engaged in the heating business. The following is the article from the Globe:

That the application of Dr. Conan Doyle's law of deduction and analysis is quite possible, furthermore that a certain electrical expert who is also a connoisseur in U. S. stamps claims that Sherlock Holmes, though deceased, had better wetch out for his laurels. The better watch out for his laurels. The stamp expert mentioned called at the wholesale window of the stamp department, Boston Post Office, Saturday, Nov. 10, leaned his most excellent umbrella in the corner, and, having invested liberally in the few remaining Columbian values, turned again to grasp his most excellent—ah, gone, you deduce what had occurred! Yes, gone and in its place a highly unsatisfactory substitute. Our hero immediately forgot the transit of Mercury, forgot his train, transit of Mercury, forgot his train, forgot all else save here was a chance for deduction. Not having the regulation 90 per cent. nicotine Sherlock Holmes pipe, he lighted a cigar of domestic manufacture, and consulted his watch with extraordinary minuteness, muttering: "If he is not here in one minute ing: "If he is not here in one minute and thirty-eight seconds we must reconstruct.

At this instant entered a man with an umbrella of the proper description, who was about to give his card to the stamp clerk, when the student of deduction passed a pasteboard to him, remarking: "I am the person you desire to exchange greetings with. The stranger promptly handed out this card:

JOHN D————, Engineer, 228 Franklin atreet, Boaton.

An exchange of umbrellas followed.

"As you are exactly 1 minute 35 seconds ahead of the time I expected to see you, you met an acquaintance near the post cflice, and you therefore did not have far to come back," remarked our trained observer. Instead of being struck down with amazement the gentleman quietly replied: "Exactly, and as I see you are a student of Doyle's law of analysis, I would be pleased to know your steps of reasoning that you should wait here for me."

b "It shall be as you desire. The umbrella in our hands being entirely unlike our own, except in color, would lead to the inference that the substitution was intentional rather than accidental; on the other hand, it is possible for an absent-minded man to make such

a mistake. It is also 'thinkable' (as Doyle puts it) that such a party should make the mistake, even though the transfer should be entirely to his credit. As regards the umbrella—first, there was one person sufficiently abstracted to fill the first part of the conditions, we may safely conclude that another person on a smaller errand might be engrossed to a degree capable of unconsciously filling the second part. It occurs to us also that a man who buys his stamps at the who'esale window would hardly stop to enrich himself in so unbecoming a manner, notwithstand-



Crane's Telescoping Floor Sleeves.

ing all umbrella jokes and the present inclemency of the weather. "When would the absent-minded

"When would the absent-minded man observe the m'stake?" "About 2 minutes and 30 seconds after putting up the umbrella?" "What would he do supposing our other inference to be correct." "He would come straight back here with it, therefore he would return in 5 minutes and 40 seconds at the latest. You came—I possess again my treasured umbrella."

# Crane's Telescoping Floor Sleeves.

The Crane Company, Chicago, have just put on the market a full line of sizes of teleacoping fire proof floor sleeves made of galvanized sheet iron. One of them is illustrated herewith. These sleeves are made with a neat cast iron flange on top and a cast iron thimble on the bottom. They are easily adjusted and have no screws, slots nor springs to get out of order. Their price is of course below that of a cast iron floor sleeve. The No. 3 size has an adjustment of 5 inches and the No. 4 size of 10 inches.

### HEATING NOTES.

Col. W. C. Mowry, Norwich, Conn., wears with grace his recently won honor of being elected Secretary of State, and sends heating apparatus to his customers with his usual promptness.

W. H. PAOE is preparing a flag pole 32 feet long from which to float a tlag over the works of the W. H. Page Boiler Cympany, at Norwich, Conn., on proper occasions, and is a little disappointed that he did not have it ready a little sooner.

GEO. M. ELLIS, Norwich, Conn., has a Volunteer boiler in his window, and inside he is arranging a platform and a nickel railing around a fine plumbing exhibit. An enameled bath, a handsome lavatory and an embossed water closet are to be shown with full nickel fixtures of the up-to-date pattern. Adjoining this display he has a high platform, under which sets a Volunteer boiler finished in white and gilt, and connected with radiators ornamented in different styles. During the past year Mr. Ellis has installed over 50 heating plants in which the Volunteer and All Right boilers have been used.

W. C. Higgins of the Richmond Stove Company has returned to Norwich, Conn., after an extended trip among the steam and het water customers of the company.

THE IRON CITY HEATING COMPANY, 610-12 Duquesne street, Pittsburgh, Pa., are a new agency for the Richmond and Victor steam and hot water apparatus, and are distributing a handsome catalogue among the residents of their city.

THE WILLIAM H. PAGE BOILER COMPANY, Norwich, Conn., issue advance sheets of their 1895 catalogue showing the improved forms of the well-known All Right and Volunteer bollers of their manufacture. Likewise there is a new sectional boiler illustrated that will be of interest to the trade. The cuts are finely executed, showing the construction of the apparatus to excellent advantage.

THE RINGEN STOVE COMPANY, St. Louis, Mo., favor us with a copy of their fall catalogue devoted to hot water heating. The catalogue contains a comprehensive explanation of their system of heating, and in addition shows photographs of some of the many houses heated by them. Prominent among them we notice the Convent of the Visitation, St. Louis, which is heated by nine No. 20 heaters, and has 27,000 square feet of radiation; the St. Joseph's Orphan Asylum, St. Louis, has 19,500 feet of radiation; St. Louis County Courthouse has 6,200 square feet of radiation, and Adolphus Busch's residence has 5,000 square feet of radiation. In addition to these the catalogue also contains a lengthy list of those using this system, and many testimonial letters are also shown. The catalogue is neatly printed on an excellent quality of paper

and should be in the hands of those who have in contemplation work of this character.

Some idea of the force exerted by water hammer is conveyed by some wrecked pipe fittings on exhibition in the shop of the Foskett & Bishop Company, at New Haven, Conn., who are making the repairs. They are 10 inch heavy flanged tees and ells that have withstood a steam pressure of 115 pounds under all conditions, and are supposed to have given way by their support settling and permitting an ac-

The New Haven Boiler Works, New Haven, Conn., are busy on an unfilled contract to make some side draft horizontal tubular boilers for John McCormack, Wallingford, Conn., which are used for heating buildings.

#### Heating Estimate Blank.

The following estimate blank used by Metz Brothers, 107 East Twenty-second street, Chicago, Ill., will interest the steam and hot water heating trade: lights for the new engine house, Aurora, Ill.

J. C. McFarland, 2511-2519 State atreet, Chicago, has the contract for the galvanized iron cornices and slate roofing on the new school building at Marinette, Wis.

A good preparation for preserving tools from susting is given by the Woodworker. It is made by slow melting together of six or eight parts of lard to one of resin, stirring until cool. This remains semi-fluid, ready for use, the

Estimates on Steam, Hot Water, or Combination Heating.

		Quan- tity		Price.	*	Cts
Date, Name, Address, Business, Architect, Address, Description,			Boiler No Direct Radiation, Indirect " Bronzing, Ft. supply and return pipe, Elbows, Expansion Tank, Gauge Glass,			
Rooms.	Width, Length, Hight, Total Style, Direct Indirect Cu. Ft. Style, Radiation, Radiation.		Valves, Nickel, Bib Cock, Vent Cock, Plate Warmer, Curtage, Freight,			
			R. R. Fare, Man's Time, Board, Foundation, Coll Radintors, Sundries, Brick Work,			
			Cold Air Box, Wood, " " " Blk. Iron, " " " Galv. Iron, Registers,			
			Register Boxes, Connecting Pipe, Ellows, Collars, Wire Screen, Mains,			***
			Tees, Smoke Pipe, Gauge, Thermometer,			

cumulation of water, which was set at work by a sudden admission of steam.

#### New Trade-Mark.

We illustrate herewith the trade-mark adopted by the Ringen Stove Company,



New Trade-Mark of Ringen Stove Company.

St. Louis, in their hot water and ateam heating departments. The design is attractive and aptly illustrates both systems of heating—steam and hot water.

#### FLASHINGS.

GOULD BROTHERS have bought out the Elmira Roofing Company, Elmira, N. Y., and will continue the business under the name of the Gould Roofing Company.

AT A RECENT MEETING of the stockholders of the Berger Mfg. Company, Canton, O, manufacturers of sheet metal roofing, siding and ceiling, the capital stock of the concern was increased from \$100,000 to \$250,000.

A. H. BUCKINGHAM, New Haven, Conn., has the contract for the sheet metal cornices, &c., for the new ninestory First National Bank Bullding in this city, and is also making the sheet iron work for the heating plant.

THE PEET & SCHUSTER COMPANY, Springfield, Ohio, were incorporated by C. A. Schuster, John II. Mumma, Charles Schuster, William Conklin and W. A. Scott. The capital stock is \$10,000 and the company are organized to manufacture roofing and architectural sheet metal work.

J. J. CCLVIN, 159 La Salle atreet, Chleago, is to furnish the copper cornices, bay windows, shingles and akyreain preventing rancidity and supplying an air tight film. Rubbed on a bright surface ever so thinly, it protects and preserves the polish effectually, and it can be wiped off nearly clean if desired, as from a knife blade, or it may be thinned with coal oil or benzine.

The Toronto Mineral Wool Company, Toronto, Canada, will move to Hamilton, Ont., as soon as the new smelting works, now building in that city, are in operation. The Mineral Wool Company use a large amount of slag in their business which they have hitherto imported from Clevelaud. This the amcilling works will be able to supply.

The Dolcoath Mine, one of the most famous copper and tin mines in Cornwall, England, is also one of the oldest, the date of its opening being so far back in the dim past as to be entirely unknown. Prior to 1788 the value of metal extracted from it is said to have been over \$10,000,000. Since the present company have worked the mine, the dividends amounted to over \$5,000,000. It gives employment to 1300 men.

# THE TIN SHOP.

# Pattern for Irregular Flaring Article.

From H. J. S., Appleton. Wis—I would like to have a method published in *The Metal Worker* for obtaining the pattern of the article shown by the inclosed sketch. Both openings are to be round, and ADF is to be a right angle.

Answer.—In Fig. 1 the side elevation of article is represented by A D F, the half profile of small end by A B C, and the half profile of large end by D E F. In the front elevation the diameter of small end II I K is shown to be 4 inches,

triangles will give the distances between the points in A C and D F as if measured on the finished article.

To obtain the triangles represented by solid lines in A D F proceed as follows: Draw any line, as L M in Fig. 2, and erect the perpendicular NO. From N on NO set off the lengths of solid lines in A D F, and from N on L M set off the lengths of corresponding lines in D T F E. Thus make N a' of diagram equal to a' 2, and connect a' b' 2. Make N b' of diagram equal to b' 3, and connect b' b' 3, &c. To

from A B C of profile. Also the stretchout of F D of pattern is derived from
F E D of profile. The lengths of solid
lines in pattern between points indicated
by small letters are derived from the hypotenuses of triangles in Fig. 2, and the
lengths of the dotted lines in pattern
are derived from the hypotenuses of triangles in Fig. 3. Then to develop the
pattern shape shown in Fig. 4, proceed
as follows: Draw any line, as A F, which
make equal to F A of the elevation.
From F, with a radius equal to F2 of the
profile, strike a small arc, as shown.
From A as center, with radius equal to

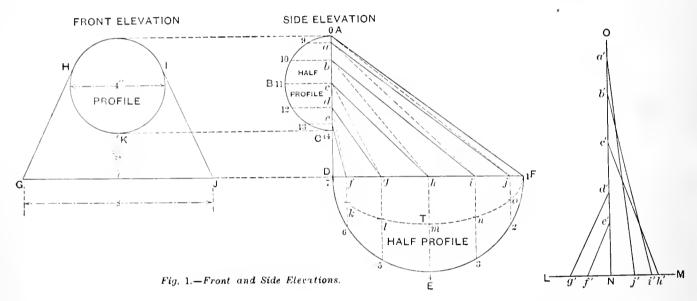


Fig. 2 — Diagram of Triangles Represented by Solid Lines in Elevation.

PATTERN FOR IRREGULAR FLARING ARTICLE.

that of the large end G J to be 8 inches, and the distance from G J to K is 2 inches. Then in Fig. 1, let A D F represent the side elevation of the article. Draw the semicircles A B C and D E F, representing the half profiles of openings. Divide the semicircles into the same number of equal parts, in the present instance six, and from the points thus obtained drop perpendiculars to A C and D F. Connect the points in A C with those in D F, as shown by the solid lines. Thus connect a j, b i, c h, &c. Also connect A j, a i, b h, &c., as shown by the dotted lines. From D F set off the length of similar lines in  $\Lambda$ BC. Thus make jo equal to a 9; in equal to b 10; h m equal to c 11, &c. The intention is to construct triangles the altitudes of which shall be equal to the lines in A D F, and their bases equal to the length of linea between D T F and DEF. The hypotenuses of these

obtain the triangles represented by the dotted lines in AFD proceed in a similar manner. Draw any line, as P Q in Fig. 3, and erect the perpendicular RS. From Ron RS set off the lengths of dotted lines in A F D, and from R on PQ set off the lengths of corresponding lines in D T F E. Thus make R A" of diagram equal to A j', R j'' of diagram equal to o 2, and connect A" j". Make Ra" of diagram equal to a i, R i'' of diagram equal to n 3, and connect a" i", &c. The last dotted line to be shown would be from point e in the top to D of basc. To do this, set off from R on R P the distance e 13 of elevation, as shown by R D", and from R on R S the distance D e of elevation, and connect D" e".

In Fig. 4 is shown by AFDC the half pattern of article, corresponding with AFDC of elevation. The stretchout of AC of pattern is derived

A"j" of the second set of triangles, intersect this arc by another, thus establishing the point i in the curve of the pattern. From A of pattern, with radius equal to 89 of profile, strike a small arc, as shown, and intersect it with another from j of pattern as center, with a' j' of the first diagram of triangles as radius, thus establishing the point a of pattern. Proceed in this manner, using alternately the hypotenuses of the triangles in Fig. 3, the spaces in DEF of profile, the hypotenuses of the triangles in Fig. 2, and the spaces in A B C of profile. The resulting points, as indicated by the letters in Fig. 4, will be the points through which the pattern lines are to be traced. Then A F D C will be the pattern for part of article shown in elevation by A F D C. The other part of the pattern, A F D C', can be obtained by a repetition of the above process or by duplication.

## Cheap City Made Gas in Philadel phia.

When the City Council of Philadelphia some time ago reduced the price of gas manufactured at the municipal works in that city from \$1.50 to \$1 per 1000 cubic feet, it was expected that the consumption of the illuminant would increase to an extent that would more than balance the loss in receipts from supplying it at the lower rate. Up to about two months ago, however, the low price apparently had no effect on the consumption, and had there been no change it is estimated the loss in revenue for the year would have been from \$800,000 to \$1,000,000. With the approach of winter, however, the expected increase appears to have at last materialized. From a recent article in the Philadelphia Record we note that the present daily excess in the consumption of gas over last year is from 1,500,000 to 2,000,000 cubic feet, bringing the amount daily manuthe demand could be increased nearly 5,000,000 cubic feet a day without getting beyond the capacity of the works. If the present rate of increase continues, however, the limit will be reached in a comparatively short time, and extensions of the works will be necessary.

#### Cheap Gases.

The following is a letter to au English exchange from T. Fletcher, a well-known gas expert, which is interesting for the information it gives as to the value of cheap gases for fuel:

That cheap heating gas for domestic cooking and warming purposes is once more coming to the front is apparent. The use of gas made by a simple cheap process, for heating purposes only, has been very strongly advocated by many who have not properly faced the whole question, and it is desirable that the actual facts and figures should be fully

be delivered into the holder at about the same cost. We must, however, take the whole of the facts into consideration. The use of unpurified gas in any ordinary household is out of all question, and this process costs within a fraction of a penny (2 cents) per 1000 cubic feet. The delivery of gas into the holder is only a part of the problem. Taking the average of the London gas companies the following additional costa are incurred per 1000 cubic feet sold (in pence and fractions):

or  $7\frac{5}{4}$  pence ( $15\frac{1}{4}$  cents) per 1000 cubic fect. There is no reason to suppose that the costs on heating gas would be smaller. No doubt the interest on capital and depreciation charges would be less, but the distribution would be very much greater, as the mains would require to be three times the size for the

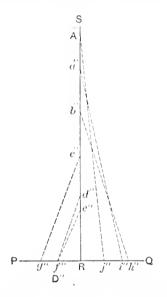


Fig. 3.—Diagram of Triangles Represented by Dotted Lines in Elevation.

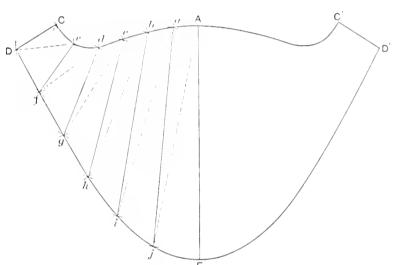


Fig. 4.—The Pattern Shape.

#### PATTERN FOR IRREGULAR FLARING ARTICLE.

factured up to about 15,000,000 cubic feet.

The increase of consumption has been of too recent a date to enable the Department of Public Works to form any definite estimate as to its character. Owing to the fact that any gas used for cooking or heating purposes would be taken from the same meter as that for illuminating purposes, the department has no means of ascertaining whether the bulk of the increase is due to that demand or to the general revival of business in the manufacturing centers. The December bills will go far toward solving the problem, and will enable the department to form some reliable estimate, based on actual figures, of the working of cheap gas.

It was a matter of considerable surprise to the city authorities that there was no larger demand for gas for cooking purposes during the past summer, as, at the reduced price, gas would have been cheaper for fuel than coal. This, together with its other recommendations, was expected to lead to a greatly increased demand for it for that purpose. The capacity of the city gas works is from 18,000,000 to 20,000,000 cubic feet daily. As the present consumption is only about 15,000,000 cubic feet daily,

considered. Of the gases available for these purposes there are three. "Producer gas" is a mixture of carbon monoxide with inert nitrogen and carbonic acid. It is extremely bulky, and so low in power as to be useless for domestic purposes. "Water gas" is a mixture of hydrogen and carbon monoxide. It is very powerful in heating, very poisonous if inhaled, and cannot be manufactured alone without the production of large quantities of poorer gas, making the process a very costly one where water gas only is required. "Dowson gas" is a mixture of the two previously mentioned and is made by a very simple process.

I think I quote Mr. Dowson correctly in stating that this can be produced at a cost of 4 or 4½ pence (8 or 9 cents) per 1000 cubic feet, including all costs, delivered into the holder, the heating power averaging one-third that of ordinary London coal gas. At this rate, comparing the two and taking ordinary gas at an average price of 3 shillings (75 cents) per 1000, the same heating power could be obtained from Dowson gas for 1 shilling and 1 penny (27 cents). This is the way the enthusiasts consider the question, ignoring the fact that ordinary coal gas, unpurified, could

same work. This could not be overcome by increasing the pressure, as the leakage would increase in proportion, and we are compelled to face the fact that the Dowson gas, delivered to the consumer, would cost over 1 shilling (25 cents) per 1000, without showing any margin of profit, and this means, for the same power obtained, a cost at least as great as the present cost of coal gas. When we consider that leakages of Dowson gas are dangerous, owing to its extremely poisonous nature, and that an entirely new series of distribution mains and special house service pipes would be required, it is evident that the attempt to introduce anything of the kind can only end in failure. It is not by any means a question of the cost of production only, as this is only one item to be considered, and the users of coal gas for heating and cooking purposes may rest content that the introduction of heating gas would not be an economy. That it would be dangerous on account of its poisonous nature is very well known, and although there is no doubt that Dowson and other heating gases have a distinct value for special commercial and manufacturing processes, their introduction into dwelling houses is anything but desirable.

# TIN PLATES.

Home Competition for the Welsh Tin Plate Industry.

A proposal is said to have been made by some of the ironmasters in the North of England to establish the tin plate industry in the Cleveland district. It is claimed in behalf of this project that the district is in a position to produce cheaply the black sheets required. Should this scheme be carried into effect, the Welsh manufacturers of tin plates will have more difficulties to face than the competition of American

works. A great deal of the pig iron and of the steel billets now used in the Welah works for the manufacture of black sheets for tinning is drawn from the Cleveland furnaces, and the Cleveland ironmasters are asking themselves why this iron and steel could not be profitably employed by themselves for conversion into tin plates. The Mechanical World, a leading English iron trade journal, says that during the last four years nearly 150,000 tons of Cleveland pig iron have been used in Wales, mostly by the tin plate works, and the Northern ironmasters contend that if the Welsh manufacturers can afford to import North Country iron and steel and make their industry pay, there is no reason why the raw materials cannot be just as profitably converted on the spot and exported to the United States, the chief market for tin plates, as cheaply, either direct or by way of Liverpool. Whether this project is likely to take shape or not is a very doubtful question. tion, as the difficulty of obtaining sufficient skilled labor will be a grave obstacle for the starting up of a new in-

The journal referred to says, however, that there is evidence that the present suggestion will not be allowed to be lost sight of, as it is felt that the establishment of the manufacture in the Cleveland district of some of the lighter descriptions of iron and steel would benefit the iron trade in that part of the country in many ways.

### The Tin Plate Wages Dispute.

The conflict between the Tinned Plate Manufacturers' Association of the United States and the Amalgamated Association, inaugurated by the starting up of the plants of Wallace, Banfield & up of the plants of warrace, Banneld & Co., Limited, at Irondale, Ohio, and the United States Iron & Tin Plate Mfg. Company, at Demmler, Pa., is now in its second week, and bids fair to be prolonged for some little time yet. concerns mentioned above are making good progress in their efforts to operate with non-union men, and while considerable time may clapse before auflicient competent workmen have been secured to operate all departments to full capacity, they feel sure that the outcome of the contest will be the defeat of the Amalgamated Association. At the plant of Wallace, Banfield & Co., Limited, the bar mill was started up on Monday, the 12th inst., with nearly a full crew, and after being operated four or five

days in order to get a atock of sheet bars ahead, it was closed down and two black sheet mills were started up, the plant containing four. On Wednesday of this week a sufficient stock of sheets had been made to warrant starting up the dipping department, and this was done on the day following. While it is not claimed that the output has been as large as it would have been with the old workmen, and that no imperfect sheets were turned out, it is claimed by the firm that so far they have had very little trouble, and the product in quality has been as good as was ever made in the plant. The manager of this plant is an experienced roller and so is the superintendent, and when the plant was started the manager had charge of the day crew and worked right with them, while the superintendent did the same with the night crew, and under this arrangement excellent results have been obtained. A high fence has been built around the plant by the firm to protect the employees, and the men are being lodged and fed in an unused building, and this will be done until all danger of violence from the old workmen has been removed. At the plant of the United States Iron & Tin Plate Mig. Company the attempt of the firm to operate with non-union men has been much more successful than the firm anticipated, both in the direction of securing competent workmen and in quantity and quality of the output. This firm are also feeding and lodging their new employees, and their personal comfort is being carefully looked after. On Wednesday, the 21st, the bar mill was in operation, and also several sheet trains and the tinning department. Very little trouble has been experienced as yet, either from breakage of rolls or inferior quality of product, and if the present rate of progress can be maintained it will not be long until the plant can be put on full in all departments. The firm are refusing positions ments. The firm are refusing positions to applicants every day, and only those who are skilled and come with good records are given employment.

#### SCRAP.

IF OCCULAR DEMONSTRATION goes for anything, business would appear to be picking up considerably in the tin plate and metal trade of New York. The and metal trade of New York. increase in the number of wagons and trucks loading up at the various ware-houses in the metal district has been very marked in the last week or two. That portion of Cliff street in particular which lies bctween Fulton and John streets, and which may be called the heart of the tin plate district, has been well-nigh impassable in the last few days for the jam of horses and wagons and the constant atream of trucks and porters emerging with loads from the stores, and there is an air of bustle withal which points to busier times, and is in sharp contrast to the comparative dullness which has ruled in that quarter for the last twelve months or more.

ACCORDING to official returns of the quantities and values of dutiable goods

remaining in the bonded warehouses of New York City at the end of last month, it appears that 6,237,584 pounds of tin plates, valued at \$148,413, were thus held on October 31. This amount is just about one-third of the quantity lying in bond on September 30, awaiting the reduction of duty on the following day. On October 31, 1893, the value of tin plates in bond at this port was \$138,977.

MERCHANT & Co., Incorporated, Philadelphia, are sending out printed slips calling attention to light weight plates that are being extensively traded in at present. They aver that such plates are frequently "sold as full weight plates, billed as such and paid for as such." They add the caution that when a purchaser gets an extra light price it is well to weigh the plates.

THE ATLANTA STEEL & TIN PLATE COMPANY, Atlanta, Ind., have superseded the Indiana Tin Plate Company of that place. Mail matter should, consequently, be addressed to the new firm. The concern are erecting three mills. Their tin house, with eight stacks, is already in working order and they expect to put that department in operation in a few days.

THE ELLWOOD TIN PLATE COMPANY, Ellwood City, Pa., have just completed the erection of a tinning house. It is equipped with four tinning sets while provision has been made for the erection of six more. This plant has been idle for some time, pending adjustment of the wage scale, but when operations are resumed two Morewood and two Thomas-White tinning sets will be started.

THE NEW CASTLE STEEL & TIN PLATE COMPANY, New Castle, Pa., will add a second pickling machine to their plant, and have placed the order for it with the Leechburg Foundry & Machine Company of Pittsburgh. When the plant of the New Castle Steel & Tin Plate Company was put in operation it was equipped with a pickling machine of foreign make, and when the increased business of the concern made it necessary to install a second pickling machine it was decided the Mesta pickling machine, made by the Leechburg Foundry and Machine Company, was superior to all others, and therefore the order was given to that concern.

The structe now going on between several concerns who are active members of the Tinned Plate Manufacturers' Association of the United States and the Amalgamated Association may possibly result in the disbandment of the Manufacturers' Association, but in all events will result in a considerable decrease in the number of members. The corstitution of the organization provides that all labor difficulties must be settled in conference, and all wage scales heretofore in existence have been signed by the secretary of the Manufacturers' Association and were binding on the members. On October 1, when the shut down of the tin plate mills occurred, some six or seven concerns' refused to be bound by the action of the Manu-

facturers' Association, and continued to operate their plants under the with scale of wages, understanding that they would be allowed any concessions that might be granted to the other concerns by the Amalgamated Association. Under the constitution these concerns have forfeited their right as members and can no longer he said to legally belong to the association. At the time that the Apollo Iron & Steel Company of Apollo, Pa., and Kirkpatrick & Co. of Leechburg, Pa., started with non-union men, it is understood that both coucerns sent in their resignations as members of the Manufacturers' Association. Now that Wallace, Banfield & Co., Limited, and the United States Iron & Tin Plate Mfg. Company have also started up with non-union men, it is expected that these two concerns will also sever their connection with the organization.

The Labelle Iron Works, Wheeling, W. Va., manufacturers of muck bars and steel cut nails have decided to engage in the manufacture of tin and terne plate. A force of men has already been put to work tearing down some old puddling furnaces to make room for the new buildings. The contracts for the equipment of the plant are expected to be placed this week. It will be a four-mill plant, and have a capacity of between 500 and 600 boxes of tin plate per day. Work will be commenced at once and it is hoped to have the plant ready for operations by April 1, 1895.

THE CONDITION of the British tin plate trade is reported as being very unsatisfactory. The wage question, which is still unsettled, is causing considerable disturbance among the Welsh works. In a few cases the men are said to have conceded a reduction ranging from 10 to 20 per cent., the reduction being offset by an increase in the output over the 36 box limit. This has caused a further fall in the price of plates, which are again down to the lowest notch, with little prospect of an early rise. The breaking of the hard and fast 36 box rule in several works is looked upon as the beginning of the end of that regulation. The men are beginning to see that the enforcement of this rule, by hampering the manufacturers in their output, has in several cases prevented them from running their works at a profit and has mainly contributed to the loss of work and reduced wages to which the tin platers have had to submit of late.

THE PROPRIETORS of the South Wales, Western and Old Castle Tin Plate Works, Llanelly, Wales, employing over 4000 hands, have informed their workmen of their decision to make a reduction of 25 per cent. in wages. If not accepted by the men, the various works will close.

A PRESS DISPATCH states that one mill of the Niedringhaus Tin Plate Works was started up last Monday independently of the Amalgamated Association of Iron and Steel Workers and at a reduction of 25 per cent.

The report of the California State Mineralogist states that during 1893 California more than doubled the silver output of the previous year, producing \$537,155, as against \$262,530 in 1892. The gold output was nearly the same for both years. This year 49 mines are being operated, and the State Mineralogist believes they will increase gold output by from \$12,000,000 to \$16,000,000.

New York Garbage Disposal.

The Garbage Commission appointed last summer by the Mayor of New York City to investigate the various systems pursued in other cities for the disposal of refuse have submitted their report to Mayor Gilroy. About 70 different methods of garbage disposal have been examined by the commission. Of these 21 were found unsuitable and were discarded. Of the remainder, 17 were for the incineration of the entire mass of refuse, including garbage, street sweepings and house refuse; six were for cremation of the garbage only, and seven were for the separation of the garbage by various processes, the resultant material being converted into merchantable greases and fertilizers. Other methods seen included the automatic separation of all the material, the valuable part being utilized and the residue burned; the incineration of the material in steel, self-propelling boats,

The committee's report is a conservative one, no particular system being recommended for adoption in New York; but the general recommendation being made that "the garbage should be disposed of by a reduction process, producing fertilizer and commercial grease." Cremation of the refuse is considered impracticable, being costly and wasteful, while by the reduction process it is estimated that the gross daily returns from 800 tons of garbage would be \$3,858, or \$4.82 a ton. This estimate is founded on reports submitted by four reduction companies now in operation.

The present practice of dumping the garbage into the sea is absolutely condemned by the commission as being the very worst way of disposing of it. The recommendation is made that it be absolutely prohibited, as it creates a nuisance at the city dumps, tends to fill up the navigable channels of the harbor, drives away the desirable class of fish, and creates a further serious nuisance on the neighboring shores.

The conclusions of the commission are summed up in their report as follows:

After a careful and thorough study of this question your commission has the honor to submit the following recommendations:

1. That dumping city refuse of any nature in the waters of the harbor, or its adjacent or tributary waters, should be absolutely prohibited.

absolutely prohibited.
2. That the ordinance requiring householders to keep separate the garbage or kitchen refuse from ashes and other house refuse abould be rigidly enforced.

3. That all house refuse should be collected in galvanized iron vessels with tight fitting metallic covers and of such size that when full they can be easily handled by one man.

4. That daily collections of garbage should be made by the city and delivered at the dump wharves into the temporary storage, or to self-propelling boats of an approved type, furnished by the party baving a contract with the city for final disposition of the garbage.

5. That the garbage should be disposed of by a reduction process, producing fertilizer and commercial grease; that the city should invite competition by the various companies controlling such systems, in order that the greatest benefit to the city may result. As the plant for reduction of the garbage of this city would necessarily be extensive and coatly, a contract for a sufficient

length of time should be offered by the eity to warrant the investment, say, not less than 10 years, with proper provision for the transfer of the property of the contractor at fair value when the contract is terminated. Ample provision should also be made and abundant security required for the performance of the work on the part of the contractor, in a clean, inoffensive and sanitary manner, and removal of the garbage daily from the city to the reduction works, which should be situated at a suitable point beyond the city limits.

6. That a separate collection should be made of the remainder of the refuse of the city not otherwise provided for, which should be used for filling in at Riker's Island or elsewhere, and for the transportation of this material a sufficient number of self-propelled thats of an approved type should be constructed and owned by the city. It should, however, be provided that whenever the whole or any considerable portion of the street sweepings can be disposed of by contract or sale for fertilizing purposes at a price greater than their value to the city for filling, then such disposition should undoubtedly be made of them.

7. That the city should adopt metal water tight covered earts or trucks of a uniform pattern for the collection of all refuse, and mechanical dust-collecting sweepers when a satisfactory type can be obtained. That whenever the sweeping of the streets causes dust to arise they shall first be sprinkled.

8. That each refuse eart or truck depositing its contents should be disinfected and washed out thoroughly before leaving the wharf.

In conclusion, your commission desires to suggest that, if the substance of this report be approved, as little delay as possible should intervene in carrying the recommendations into effect, in order to prevent a recurrence of the serious causes of complaint of the past summer. Six months, at least, will be required to make the necessary preparations.

While the first cost of the necessary plant to carry out these recommendations will be considerable, your commission is convinced that the public good demands it, that the scheme here outlined, fully carried out and properly administered, will abate the nuisances so long complained of, and place this city in the front rank of the cities of the world in the cleanliness of its streets and the sanitary and economical disposition of its refuse.

Horace Swartz, who has been bookkeeper for F. Sabin of Philadelphia for several years, has left to take a position in Alexandria, Va., with an electric railroad company. Mr. Swartz was very popular among the trade and on Saturday, the 17th, ten of his friends presented him with a handsome gold watch, the presentation being made at A. C. Votteler's, on Arch street. In presenting the watch suitable remarks were made by W. F. Habicht, the presentation being followed by a dinner, which took some time to dispose of. The ten members of the party consisted of J. B. Borden, Eugene McDowell, Jr., Harry Kirchner, Charles Votteler, F. Sabin, S. Hibbs, E Hibbs, Alvin Brandt, Mr. Miller and William F. Habicht.

The International Postal Congress will meet in Washington, D. C., in 1897.

# THE RETAIL STORE.

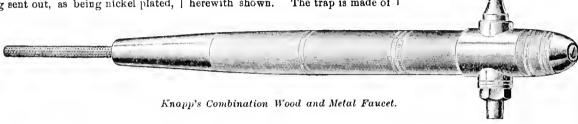
Knapp's Combination Wood and Metal Faucet.

The accompanying cut illustrates a combination wood and metal faucet put on the market by Knapp's Faucet Company, Syracuse, N. Y. The faucet is described as being made of hard maple, as impervious to any liquor, as tested under a pressure of S0 pounds before being sent out, as being nickel plated,

to doing all sorts of niekel plating work make a specialty of display racks and stands for show windows.

Streeter's Sensible Rat Trap No. 20.

N. R. Streeter & Co., Groton, N. Y.; New York office, W. H. Jacobus, 90 Chambers street, are effering a trap as herewith shown. The trap is made of the best known material for use in cutting live electric wires and cables with safety, as the fiber combines great atrength and perfect insulation. It is stated that the cutter blades are drop forged of the best tool steel, and that



polished and varnished, and as being equipped with an automatic strainer. The part of the faucet that entera the barrel is protected by a metal ferrule and tubular screw, while the head is protected by a malleable iron cap. A solid ateel band strengthens the key way, and the key is ground in a metal bushing to form a permanently tight and easily working joint. The key is wood lined to prevent corresion, and is an a constructed as to throw the atream to a point. It is explained that the automatic strainer is a perforated tin tube, which slides back into the bore of the faucet and releases itself automatically after the barrel is tapped. The manufacturers remark that the faucet is all wood even to the block tinned key, which is lined with wood, and that it is strengthened at the weak part of the ordinary wooden faucet, consequently that is has the strength of a metal faucet

malleable iron, with a device for setting, which they refer to as simple and effective. A game trap is constructed on the

all parts of the tool are interchangea b making it always possible to replace broken or worn out parts. The cutter



Brady's Safety Wire Cutter.

same principle but is larger and is known as No. 30.

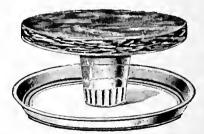
Brady's Safety Wire Cutter.

The accompanying cut represents a safety wire cutter, put on the market

bladea are so constructed that as they are ground away in sharpening they can, by means of a series of notches and pluga, be set around one notch at a time. This can be repeated until the blade is used up, when a new set of bladea may be inserted, thus making the cutter, it is stated, as good as new, as all the other parts of the tool are practically indestructible. The cutters are furnished nickel plated, in antique bronze and forge finish, and are designed for use by fire departments, trolley lines, electric light companies and telegraph companies, for cutting live wires with astery.

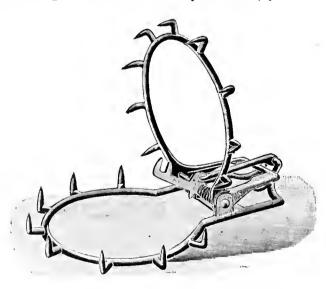


Sidney Shepard & Co., Buffalo, N. Y., have recently improved their Perfection tins. which have been on the



Improved Perfection Tins.

market for several years. As shown in the accompanying cut, the improvement consists of a patented groove, which the company state overcomes the objection that the tins, as before



Streeter's Sensible Rat Trap No. 20.

without its faults, and all the advantages of a wooden faucet without its weakness.

THE NORWICH NICKEL PLATING WORKS, Norwich, Conn., in addition

by James Brady, 83 Washington atreet, Brooklyn, N. Y. The cutter is 24 inches in length over all and is made of ateel drop forgings. The handles are 7½ inches in length, made of vulcanized fiber, which, it is remarked, is

made, might leak batter or juice of pies. The illustration shows the cake removed from the tin. The cake is supported on the removal bottom, from which it is easily alid off. The goods are also made square and oblong.

### Tap and Die Holders.

Wells Brothers & Co., Greenfield, Mass., are offering an improved form of tap and die holders, as shown in the accompanying cuts. The tap holder, Fig. 1, is provided with a two jawed

understands the wheel business, which would put us to a disadvantage as against a regular Bicycle dealer.

Look at the number of Bicycle dealers here and see how little they are

making, and how few of them make a success of it.

#### ANSWERS TO OBJECTIONS.

To these several objections I make

Bicycles can be and are being sold for cash by many retail Hardware dealers at a good profit, and even if some do have to be sold on credit the



Fig. 1.-Tap Holder.

chuck which, it is stated, holds taps perfectly true. The handle is made of perfectly true. The handle is made of cocobola wood, fully finished, and the top screws off, showing the receptacle where a number of taps are held while not in use. The die holder, Fig. 2, is made of similar material and is deaigned to hold 5 inch diameter dies up to and including  $\frac{1}{6}$ . The handle holds five dies, the top of which screws off, thus permitting the dies to be dropped out when needed, providing a compact and convenient receptacle for keeping the dies when not in use. The point is made that these holders permit the user to get the tools into close and awkward places, and that bicycle re-

same discretion can and should be same discretion can and should be shown as in selling a Srove or a bill of house trimmings. It will not be good business policy to sell a \$100 Bicycle ou time or on the installment plan to a person who is earning only \$6 per week and who must depend upon his savings to pay for his wheel.

It is not actually necessary that you should you a purching should you a purching should you a preching should you as preching should you as

It is not actually necessary that you should run a machine shop to be in the wheel business. I know of many Bicycle dealers among the retail Handwaremen who avoid their expense and who make a success of the business. Some retail Hardware dealers in larger civies now sell goodly number of stoves yearly and do not leave a timeson or true at in shoring any keep a tinner or run a tin shop in any

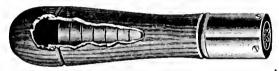


Fig. 2,-Die Holder,

pair shops and users of small sizes of acrew cutting taps and dies will find the holders practical and convenient. The manufacturers state that they are now prepared to quote prices on these and a large number of improved tools, which appear in their enlarged catalogue, now ready for distribution.

#### The Seiling of Bicycles by Hardware Merchants.

BY HENRY M. GAY.

I have been selling Shelf Hardware to the larger retail Hardware trade on the road since 1867, principally to larger towns in Wisconsin, Michigan and Minnesota, but the average retail Hardware dealer in my territory is as "scary" of the Bicycle business as he would be of the Sewing Machine business, and gives the following as the principal reasons for taking this posi-

OBJECTIONS.

No living man can do a Bicycle business on a cash basis. The business must be run on credit or on installment plan.

It would be necessary that we run a machine shop for repair work, &c.
The wheels would take up more room

than we have to spare for such slow selling goods.

There are now so many lines of wheels in the market, all claiming to be the best, that we would have to keep a different make or style for every customer we might strike.

We do not ride a wheel, and there is no one in the store that does or that

sense of the word. These men are merchants, not storekeepers, and understand their business. I also know of retail Hardware dealers who sell as high as 25 wheels per season who do all their Bicycle repair work in their own tin shop and their tinners are now getting to be quite expert at re-pairing Bicycles. There are 25 Hard-ware retailers in one city where I go to who are selling Lawn Mowers. Not one of them is prepared to do a general Lawn Mower repair business in its fullest meaning. Still these people its fullest meaning. Still these people all sell Lawn Mowers and some of them sell 25 to 50 per year now, while when they first started out they were afraid to put in any Mowers. They would order them one at a time as they found a customer for one. The same rule applies to Bicycles as to Refrigerators, Lawn Mowers, Clothes Wringers, Steel Ranges, Gas Ranges and many other items which in former years were sold principally by firms years were sold principally by firms who sold one of these items only. No trouble about the machine shop part of the business. What one cannot do in that line properly can be done at factory or elsewhere. factory or elsewhere.

#### IT WILL PAY TO

devote a reasonable amount of room or devote a reasonable amount of room or space to Bicycles in a store. Some retail Hardware dealers fill up the lightest and most valuable portion of their store with such goods as Mounted Grindstones. Stove Hollow Ware, Stove Pipe, Saw Bucks, Wagon Jacks, Wheelbarrows, Caldron Kettles, Bnilding Paper, Fence Wire, Poultry Netting, Horse Pokes, Post Hole Diggers &c. All such goods sell at little gers, &c. All such goods sell at little

or no profit to the retailer and can be kept in the cellar or basement or in the warehouse or on an upper floorif there is an elevator. These goods can be sold without having any special talent as a salesman. They sell themselves, consequently they are kept in the foreground. These store keepers tell you they have no room for Bicycles. On the other hand, some modern flard-ware merchants sell 10 to 20 Bicycles during a season and never find it necessary to keep over two or three samples in sight.

#### ASSORTMENT,

There is no more necessity for carry-There is no more necessity for carrying a large variety of makes of Bicycles than there would be of Refrigerators. Select one or two good makes, always including one high grade of established reputation, made by a manufacturer of good repute, Secure a wheel that has a sufficient number of good points that will good number of good points that will command themselves to buyers of Bicycles and then sell that wheel against all comers.

#### THE SALESMAN.

Learn to be a salesman

A salesman does not have to be a bicyclist to sell wheels. Some large Carriage dealers are neither coachmen nor horse jockies. You don't need to be a chopper to sell Axes or a cook to know how to sell House Furnishing Hardware. A Hardware dealer cannot expect to learn all the trades to fit himself for selling tools

#### BICYCLES AND HARDWARE.

Because exclusive Bicycle dealers fail in many instances to make a success of selling wheels at a profit the wide awake retail Hardware dealer wide awake retail Hardware dealer should not take fright. The exclusive Bicycle dealer had to run a whole establishment for the wheel business alone. A merchant has his establishment in good working order and can add one more line without adding perceptibly to your present expenses. Again, a merchant has more people coming into his store than the exclusive Bicycle dealer has in his. He has ive Bicycle dealer has in his. He has been established in business for years and has many friends who will trust to his judgment in the matter of selecting a Bicycle, even though there were au exclusive Bicycle house on either side of you.

My advice to the retail Hardware

dealer who is so timid on this subject would be to try the thing before he condemns it.

#### SUCCESSFUL MERCHANTS.

Very few retril Hardware dealers proportionately, who have ever given the Bicycle business a fair trial have discontinued it. They learn to like the business and usually end up with rid-ing a good wheel themselves. Don't get too many makes on the start. You'll soon be able to judge for yourself as to that part of it. Go lightly on Breycle sundries until you get ourther along in the business. Your customer will, as a rule, wait until ou can get in what he wants in that line from headquarters.

#### A GROWING BUSINESS.

Let it be known far and wide that you are in the Bicycle business with the rest of them. Conduct the busi-ness on the same lines as you do in other important items in your stock. Think for a moment of the hundreds of thousands of wheels now in use and the probable increase to be expected on an article that is growing in popular favor, and that has come to stay, and decide to get your share of the benefits to be derived in the way of profits on sales that will surely go to those who are not afraid to tackle the wheel business. Don't be a turtle, be an eagle.

# STOVE TRADE NOTES.

#### The New York Stove Trade.

The stove trade in New York City and vicinity may be said to be in an uncertain and eccentric condition, coming and going by fits and starts. The wholesalers' mail one morning will be large and rich in orders, to be followed the next day by a great scarcity of business communications. Customers make their appearance in numbers for an hour or two, and for the balance of the day things will take on a Sunday appearance. It is unsteady and erratic, though a cold wave is sure to develop a demand from unexpected quarters, and from dealers who earlier in the season were among those who felt sure from the number of stoves carried over they would not need to buy any this year. It proves beyond doubt that the masses apend their money from day to day for whatever the elements and conditions compel them to buy, and the dealers themselves are inclined to buy from hand to mouth.

But the tendency is certainly for the better, and while the volume of the trade this fall will not exceed that of the fall months of last year, owing to the many men who have been unemployed for months, yet there is a decided improvement in the feeling among dealers and an absence of any dread of harder times than we have passed through. Gradual improvement and returning confidence are further indicated by the fact that the decrease in sales for the month of September did not continue, and during October and so far this month sales equaled in volume the output for the corresponding period last year. Again, the middle classes and those who have not suffered from any reduction of wages due to curtailed salaries or loss of work are less inclined to hoard their money against further depression.

The demand has continued as earlier in the scason on the smaller sizes and cheaper patterns of heating stoves, as well as cook stoves and ranges. The high priced constructions are slow of The impression is still abroad, and probably well founded, that we are to have a hard winter-that is to say, that there will be much suffering this winter as there was last, and, notwithstanding the encouragement felt by the laboring classes that better times are in atore, they consider that there remain a few months when it behooves them to maintain economy in their expenses and postpone purchases till 1895. The belief is daily spreading that next year

will bring forth good business, and from the history of panics, known to be due in so large a measure to loss of confidence, and the consequent retrench ment by those not compelled to practice it, the contrary feeling pervading the people will produce contrary results so much desired by everybody.

#### The Ohio Stove Trade.

The past two weeks have developed no new features of special moment in the stove and range industry of the Ohio district. Orders have continued to be quite satisfactory in the aggregate, but the individual sales have been small and manufacturers have been furnished additional evidence that dealers are carrying only such stock as they are obliged to, showing no tendency to anticipate trade requirements. For this reason the manufacturer is much closer to the consumers than in ordinary times. and this close relationship gives rise to greater sympathy between the producer and the general public. The warm weather has interfered some with trade, giving a spasmodic nature to business, as on some days orders have dwindled to very small proportion while a succeeding day is likely to bring a heavy mail, bearing numerous orders which task the capacity of the producer to meet promply.

Although the returns for the first half of the current month have not fulfilled the promise of the activity in Octoher, and the fall trade has not entirely compensated for the deficiency contributed by the apring months, yet there has been a greater and more rapid recovery than has been anticipated by the trade at large, and confidence in the future has taken root in the improved tone arising from the clearing of the political atmosphere.

The more intelligent founders do not look for any marked improvement in business from now until after the winter months, as it is already late in the stove season, but the very character of the orders indicates that manufacturers are more apt than heretofore to be the recipients of desirable business extending far into the winter months.

As far as Cincinnati and its immediate territory are concerned there is evidence that the wage earner is meeting more encouragement and fuller employment, although there is much room for improvement. One manufacturer from whom we have recently heard sums up the situation tersely as follows: "Depressions come quickly; resumptions slowly."

#### Western Stove Freight Rates.

The Western stove trade is stirred up on the very important subject of rallroad freights The Western Classification Committee of the railroads have decided that on January 1 they will raise the classification on atoves in less than carload lots. They are now taking third class rates, and it is proposed to advance them to second class. The importance of this advance may be shown by a few instances. The rate from Chicago to Missouri River points is new 45 cents per 100 pounds; it will then be 65 cents. The present rate to St. Paul is 40 cents; it will then be 50 cents. The rate from Cuicago to East St. Louis will be advanced from 29 cents to 38 cents. Rates to other Western points are raised in the same proportion, the entire territory being covered weat of Chicago. The price of stoves will thus be materially raised to dealers and conaumers. A stove weighing 300 to 400 pounds will thus cost a dealer in the Missouri Valley almost a dollar more than at present.

It was at first supposed that manufacturers and dealers might avoid the greater part of this increased freight rate by shipping more in carload lots. But the railroads have headed this off by raising the minimum weight of a carload from 20,000 to 24,000 pounds. At present the trade is not in such condition that carloads of 24,000 pounds can be easily made up.

Stove manufacturers are using their utmost influence with the railroad authorities to have this action rescinded. Merchants and consumers should unite with them in making protests. This is not a good time to advance the cost of anything.

#### A Scientific Remedy.

BY X. PERIENCE.

The woman who had the range for some reason was not altogether pleased with it, yet had no good reason for complaint. She had concluded, however, to find fault and insisted that it did not bake, but that was found to be a fairy tale, and though she had no good reason to find fault that woman made the life of the stove man a torment. He had several traveling men from the house that made it stop in; some suggested hard iron as preventing the heat properly permeating the provender and promised a new plate for the oven, but that old gag didn't work. She wasn'e going to have her kitchen made a work shop, and it was a new stove or nothing, and she continued to kick on principle though her husband had pie three times

Another traveler wanted larger pipe put on, but the atoveman demurred, as that meant money out of his pocket and extra work: besides other stoves worked with the same size of pipe. One man said the chimney ought to be higher and that suited the stoveman, as he would raise it any reasonable hight with good galvanized iron pipe at 50 cents per foot. The woman said the chimney had worked all right for years and she would not build a chimney to suit any old makeshift in cast iron that some reople had the impudence to call a range. Finally a real smooth old fellow came along and he was taken to see this range and caught bread coming out of the oven that looked so delicious that when he saw it he said he wished it was dinner time all day. But one side of the losf was not as brown as the other, and he asked the woman if she had not had trouble with baking in that stove. "Why snybody could see it by that bread," he said. "It is too bad that you should have been so bothered and nobody fixed it. The trouble is simple and can be easily remedied, yet has made you fret and fuss."

The stoveman's eyes stuck out so you could have knocked them off with a stick, and his mouth was open so you could see his gizzard palpitating with surprise when he heard this. The old man said: "Plesse give me a pie plate and some water, miss." Miss! Why Whv she was a relic of the Revolution, but she simpered at the old rat's soft solder and brought what he wanted. He set the plate on the bottom of the oven and filled it with water and then an hour was spent putting chips under the stove legs to get the oven level. He said no oven would bake that wasn't level and he was surprised that no one had found it out and saved the good lady the worry she had had. He said she would never have any more trouble and she gave him a piece of that hot bread, some butter and a glass of milk, while he discoursed on baking to educate the stoveman and show the woman that she had cause for complaint. Well, when they got in the wagon and drove away the stoveman wanted to know how the ovens worked in stoves on vessels that were seldom on an even "Sonny, keel. The old man said: don't ask disagreeable questions and slwsys use science when your sense fails to suggest a quieting remedy."

### The Aurora Stove Works.

The visitor to Rathbone, Sard & Co.'s Stove Foundry at Aurora, Ill., is told that the works are not running full handed, but he would not be so impressed on actual observation. The large foundry is well occupied, every foot of space being in use. The cupols foot of space being in use. The cupols which was put in when the plant was built has been found equal to the heavy work required of it. Forty tons of stove castings are frequently made here in one working day, and the cupols easily meets the requirements of the situation. As originally planned, the foundry was to be extended to nearly double the present size, with a second cupola placed so as to serve the extension and a por-tion of the present floor space. The tion of the present floor space. The condition of the stove trade for the past year, however, has not warranted this great increase in facilities. This foundry is one of the finest to be found in the country. It was built with a view to securing the largest amount of light possible, the walls and roof being largely constructed of glass. The roof is also unusually high, furnishing an abundance of sir space above and providing fine ventilation.

Among improvements which have re-

cently been made is a large addition to the warehouse. This addition is a massive brick building, of mill construction, to support the heavy weight ef the huge stock of stoves accumulated in it before the active shipping season. It is 95 by 112 feet, three stories and a basement in hight, and would in itself make a very commodious warehouse for a stove foundry of some pretensions. But it is smaller than the old part, which is 95 by 212 feet, and of the same hight. The length of the entire front of the warehouse as now extended is 324 feet. It is equipped with several elevators, at convenient distances, to enable stoves to be easily handled be-tween the several iloors. Two parallel tween the several floors. side tracks run along the front of this building, so that two trains of cars can be loaded at the same time by running platforms across from the door of a car on the front track to the door of a car on the rear track. The shipping facilities thus secured are superb, and will un-doubtedly inure greatly to the advantage of the company whenever times improve and stoves are called for as they were in 1890 to 1892. A trade of huge dimensions can then be easily handled. The ground in the rear of the main buildings is gradually being covered by structures erected for special purposes. An isolated brick building has been put up for use as a carpenter shop and japanning room, the two being separated by a fire wall. The japanning room is equipped for handling the finest work of this character, and is furnished with a very large sized oven. Here the company's new Acorn signs are being finished at present.
They are made of two pieces of sheet metal, stamped elsewhere and brought here to be completed. These are said to be the largest sheets ever stamped, and required skillful treatment in the handling of the huge dies to produce the scorn shape. The carpenter shop is equipped with machinery run by power transmitted by rope from the mounting shop, a considerable distance away. Another isolated structure is a pattern storage house, in which are kept all the stove patterns, to reduce the risk of fire. This building is of the risk of fire. This building is of good size and is fitted with racks extending to the roof, all of which are indexed so as to be essy of reference. A storage tank, holding 65,350 gallons of water has been constructed near by, for use in case of fire here or on any part of the premises. The finishing departments of the

works are not the least interesting to the visitor, from the cleaning room through the mounting shops to the nickeling department. In the mounting shops every grade and style of stove is in process of erection from the parts which have been assembled. Especially active is that section in which the Acorn Radistor is mounted. This is the company's new air tight soft coal stove. The body of this stove is made of heavy sheet steel, to which a cast iron door frame is riveted. In mounting these stoves the bases are first put to-gether and arranged in rows on the floor. The cast iron fire pots are then set on the bases. The next operation is to fit the sheet steel body on the fire pot. It is driven down into place with a heavy hammer. Next a cast iron top is fitted on the sheet steel body. Long rods are then run from the top to the base outside of the stove, nuts are screwed on their ends, and the whole structure is made perfectly rigid. The open work cast iron jacket is then brought in four separate pieces, one for each side, and bolted in place. The top

is a's bolted on, and the stove is ready to be taken to the finishing room for the addition of nickel parts. stove all joints are covered with fire proof cement or soft fire proof packing before bolting or driving them together, to guard against leakage of air. doors have cam latches to enable them to be drawn perfectly tight. Throughout the whole establishment an air of perfect system and rigid discipline is apparent. The works have been running steadily throughout the present year, with the exception of a brief stop on account of the coal and coke strike, when there was a dearth of fuel.

#### ODD PLATES.

A WELL INFORMED CORRESPONDENT, writing of the general situation in Pittsburgh, states that the stove business this fall is fair and that the leading stove foundries are running full time. They are, however, as a general thing, operating with a reduced force and are not crowding their floors with work. Many of them report shipping more goods than they are at present turning out, and are in this way cleaning up their stock. After the first of the year they expect to run full capacity for the spring trade.

II. V. DRAKE of Mount Vernon, N. Y., visited the city during the week making his fall purchases of furnaces and ranges. During his sojourn here he was the guest of Frank Graff of Graff & Co.

The Standard Lightino Company of Cleveland, Onio, refer to the ease with which their New Process stove is controlled, stating that a slight touch of the finger produces a sub-fire, while snother touch extinguishes it. In cold weather, it is said, a sub-fire is needed only 20 minutes after the stove is lighted and should then be shut off. The burner drums for 1895 New Process stoves will be made so that cast iron surfaces only come in contact with the flames. The removable, cleanable sight feed employed in these stoves is made of glass and is easily cleansed.

"DETROIT'S POOR" was the subject of a conference held Sunday afternoon, November 18, at the Tabernacle Methodist Church in Detroit, Mich. Among those interested in the amelioration of the condition of the poor of that city is George H. Barbour, who made an address in which the ground was covered at considerable length. It will be remembered that Mr. Barbour was active last winter in this direction, and a great deal was done to render the poor of Detroit more comfortable.

REPORTS from Eastern Pennsylvania are to the effect that the Reading Stove Works, Reading, Pa., have recently been making some good sized shipments of their goods to various parts of the country, sending out as many as 500 stoves a week.

THE MANY FRIENDS in the trade of Frank H. T. Barbour, vice-president of the Detroit Steve Works, Detroit, Mich., will be interested in knowing that he has recently taken to himself a wife, having been married on the afternoon of November 8 to Miss Elsie Tower, daughter of Mr. and Mrs. O. S. Tower of Ionia, Mich. Edwin S. Barbour of Detroit was the best man. The bride and groom left at six o'clock in the evening in General Alger's private car on a special train over the Detroit, Lansing & Northern Railroad. After a journey through the East the couple

will be at home, at 210 Lafayette Detroit, after December 1. avenue. Among the guests present at the marriage ceremony were Mr. and Mrs. C. A. Ducharme, Mr. and Mrs. George H. Barbour, Mr. and Mrs. E. S. Barbour, W. H. Ducharme, George A. Ducharme and John M. Dwyer, all of Detroit.

THE ROUND OAK STOVE WORKS OF Dowagiac, Mich., are reported to be contemplating the use in the near future of electricity as a motive power. It is said that the dynamos will be located at a water power about 5 miles away, and the current carried by heavy copper wires to the works.

THE BELLAIRE STOVE COMPANY OF Bellaire, Ohio, are distributing to dealers handling their goods an embossed metal sign, measuring about 7 x 10 inches and intended for hanging on the entrance door in such a way that it can be seen through the glass from the out-The groundwork is copper color side. The groundwork is copper color on which are embossed dark letters reading, "Come in; shut the door; ssk to see Star stoves and ranges." In the upper left hand corner of the sign is a picture of the Star six hole range with elevated shelf and reservoir. The wrapper in which the sign is mailed has stuck upon it a red paster with the fol-lowing inscription in white letters: "Solomon had a thousand wives; the Bellaire Stove Company has millions of them using their stoves and ranges."

THE QUICK MEAL STOVE COMPANY of St. Louis, Mo., give to the trade a statement which indicates the number of Quick Meal stoves sold by them from 1882 to 1894, inclusive. A glance at the figures shows that there has been as steady increase in the sales of these goods. In fact, each year has shown an increase over the preceding year, with the exception of one or two. A glance at 1894 reveals the company's explanation for the falling off in their sales, which they attribute to the panic, coal strike, railroad strike and unsettled This is a startling array of reasons, and the only wonder is that the falling off was not more severe.

THE STAR COUPLER COMPANY, St. Louis, Mo., who are making a coupler of various sizes for connecting water back and boilers, have recently shipped a stock of couplers to the Marine Hospital, St. Louis, for use in that institution. The Louis, for use in that institution. Star Coupler Company have made con. siderable improvement in their coupler and have also increased their facilities for manufacturing these couplers so that they are now able to make prompt shipments.

THE CHICAGO OFFICE Of the Peninsular Stove Company has received under recent date a letter from the company's agenta at Sac City, Iowa, in regard to the Alr Tight Peninsular. Mr. Bauer, the senior member of the firm at Sac City, states that he has one of the stoves set up in his sitting room and that it gives very satisfactory results. Quoting from his letter with regard to the fuel used he says: "I have been burning stone in my stove for the past week and it does fine. I bought it for coal, but the dealer made a mistake and sent me stone, but it gets there all the same."

"THE MOSHER HOT AIR FURNACES," is the titte of a four page folder which reaches us from M. J. & M. R. Mosher of Troy, N. Y. These heaters are made in five sizes with fire pots ranging in diameter from 13 to 28 inches. The radiators are made of heavy steel plate or cast iron, the fire pots are heavy and dur-

able and the grate employed is either the plain or superior triplex. The manufacturers refer to these heaters as having great radiating capacity, as econom ical in the use of fuel and perfectly gas tight. The firm have been making laundry stoves since 1880, sending them to all parts of the world, and for three seasons their Nos. 26 and 32 furnaces have been used in California, Montana, Idaho, Washington and Oregon. Mosher furnace is adapted for heating large and small houses, churches, factories, school houses, &c.

### Manufacture of Saultary Goods in England.

A paper read before the North of England Plumbers' Teachers' Associa-tion of the Durham College of Science, Newcastle on-Tyne, England, by W. E. Bland, lecturer on plumbing at that college, is reported in the Plumber and Decora or of London. From this report we extract the following remarks of the lecturer in respect to sanitary goods and fittings as at present produced in England:

Water Closets.

Reviewing the progress of the manufacture of and the workmanship in connection with the fitting of water closets, Mr. Bland pointed out that the conditions of a good article were:

1. Simplicity of action in the work-

That the basin should contain such an area and depth as can be completely charged by an ordinary flush of from 2 to 3 gallons of water.

3. A perfect and sufficient seal of

water in the trap.

4. That no dry surface of the basin should be exposed to contamination. 5. That the outrun should have a con-

nection to the soil pipe or drain that can be made perfectly and permanently

He pointed out that this latter necessity, although the most important, was more frequently overlooked than the others, and instanced numerous cases which had come under his notice by the old and extremely dangerous putty

joint.

It was shown by disgrams that the closet known as the "hopper" in its varied forms, while complying with the first and second of his stated requirements did not comply with the others, and instanced the valve closet, which had kept in favor longer than any other form in use to-day, consequent upon its many alterations and improvements, as one that met the whole of the requirements nearer than any other, although that even lacked the element of simplicity of action. He pointed out how a good seal could be obtained, and that the outrun of the closet should be of an oval form, as reducing the size of the valve hox and aiding the discharge of water without forming the vortex which is common to the circular outlet, and that the trap and valve box should always be ventilated. The advantages of the pedestal, as compared with those inclosed by wood work, were also explained, and the silent action was commended.

### Shortcomings of Modern Closets.

Coming to more modern forms of closets, those known as the washout and the wash down were brought under notice, and it was asserted that notwithstanding the large demand for them those of a cheap make were unsafe, frequently having a seal of from 1 inch to 4 inch only in their traps and relying upon the faulty putty joint for their

connection with the soil pipe, and which, his experience had taught him, invariably failed.

The washout, although favored by some architects and introduced to remedy a failure in the "hoppers" as to a scarcity of water in the basin, has not gone far enough in that direction. has not sufficient area or depth of water to deal with the matter it receives, so ss to keep down the knowledge of its use, and this cannot be deepened without affecting the flush, and for the same reason the seal to the trap is reduced, and, again, the cleansing of the funnel and tran is imperfect, owing to the force of the flush being wasted on the side of the basin. Further, the connections to the vent pipe are not as they should be. He had seen this remedied by having bolted and flanged connections to these bent horns, similar to that to the soil pipe. When not required, a galvanized iron plate can then be securely bolted over, instead of the usual plug of wood or putty, which in time shrinks and becomes a source of danger.

### Desirable Improvements.

The washout was said to be a superior article, and when properly made, a really good closet, with ample water to drown the deposit, the flush being thrown direct on the water surface of the basin with such force as to insure its being changed each time used and allow a deeper seal to the trap, although an after flush is necessary to insure the seal being retained at its proper depth. It was pointed out that the combined cistern and closet introduced by an eminent Scotch firm deserved attention. The whole 3 gallons of water needed for the flush is thrown into the basin almost instantaneously through a 5 inch valve, and has a capital cleansing effect; the body of capital cleansing effect; the body of water thus accompanying the solid mat-ter down the soil pipe and drains pre-vents the sides of these pipes being contaminated and stained—an important point. Its appearance was good and the fittings readily got at. A London firm had also placed another on the marnrm had also placed another on the market of which great things were expected, but of which he had not yet had experience. The water was drawn from the basin by a siphonic action, by which means sufficient water was retained in the basin—both simple arrangementa.

### Baths and Sinks.

The question of baths was also dealt with by Mr. Bland, the self contained bath without its wood covering being strongly recommended, with suggestions as to its ornamentation. A 2-inch clear area by the holes of the grate and the same gauge of pipe throughout was considered necessary, and much stress was laid upon its use as a flushing tank for the drains and traps and the necessity of architects giving a proper posi-tion to it for this purpose. Its mode of delivery and ventilation was also fully explained, as well as the mode of inside fittings so as to minimize damage and inconvenience in case of failure. Where inconvenience in case of failure. Where the plug and chain was objected to he was in favor of a quick discharge clack valve and separate overflow in preference to the average atanding waste arrangement. Caution was given against allowing the supply and discharge to pass through the same pipe.

The trade returns of Canada for the first four months of the current fiscal year show a falling off in the foreign trade of the Dominion during that period amounting to \$8,744,305.

# TRADE REPORT.

### The Iron Market.

The most sensational report of the week is that relating to the placing of an order for three armored cruisers by the Russian Government. The reports, which are as yet unconfirmed, have it that the Cramps have captured the work and that the Bethlehem Iron Company have secured the order for the armor. That both shipbuilders and armor plate makers have had negotiations of this character under way is beyond any doubt. The reported success of the negotiations is certainly a flattering tribute to the ability of our yards and shops, and proves their capacity to compete with the Euro peans in this particular line of work.

Somewhat extravagant stories have been set affost about the 10,000-ton Cast Pipe order for the Tokio Water Works. The matter is still in abeyance. The first order for 10,000 tons of heavy Pipe for these works was taken by the Scotch founders at \$20, f.o.b. Glasgow, with a 30 shilling freight rate, which American shops could certainly best in spite of somewhat higher rates

of freight.

The prospects for work for the future are becoming more and more favorable. Bids are in for a four-track railroad bridge for this city, which will call for 35,000 tons of material, including the approaches. The work will extend over two years. Then there is the certainty that the coming years will witness a very large outlay of money for rapid transit in New York, with its large requirements of Iron and Steel.

The building of large structures, too, promises to absorb a very large amount of Structural Material in all the larger cities in the country, and in many of the smaller towns. Quite a number of buildings have been closed in New York, including the extension of the Waldorf Hotel, which puts 8000 tons into the shops of a Pittaburgh mill. Outside of that a few thousand tons have been taken in New York.

Still, the better prospects refer rather to the more distant future, and have less to do with the perplexing problem relating to the turn of affairs for the next three or four months.

In Foundry Irons sales are moderate and the market for the Southern product has displayed unmistakably a weakening tendency.

Plg Iron.-Aside from one order for 1000 tons for a pipe works in this State no transactions of any magnitude are reported in the New York market. Lower prices are being made by some Southern furnaces, but are not stimulating the demand.

Advices from Philadelphia indicate that sellers of Pig Iron consider that the market is in quite as good shape as they ought to expect in view of the lateness of the season and the steady increase in the output. There is no change in prices, which average steady, and the market is fairly active as regards demand. Taking everything

ing to the near approach of the holidays, the ultimate outlook is regarded as being in favor of better prices than are now ruling. General quotations for Philadelphia and nearby points are about as follows, and from 20¢ to 30¢ less 50 to 100 miles South or West:

The following report comes from our Chicago representative in regard to the Pig Iron market at that centre: The time is now at hand when buyers are generally doing very little in making new contracts, as the close of the year is approaching and stocks are permitted to run low. Yet an occasional consumer is found, the nature of whose business requires him to purchase material without regard to the inventory season. Enough business of this spasmodic character has been placed since last report to make a fair trade. Orders for 200 to 300 tons have been frequent and several 1000ton lots were sold. These transactions have almost invariably fallen into the hands of the local Coke Iron makers. Southern sellers have done but little, although offering concessions. The demand for Lake Superior Charcoal is fair but by no means large, the demand running only to small lots, with prices drooping. Quotations are given as follows for cash

Lake Superior Charcoal	\$13.00	0	\$13.50
Local Coke Foundry, No. 1.	10.1216	ã	10.25
Local Coke Foundry, No. 2	9,50	a	9.75
Local Coke Foundry No. 8.	9.25	0	9 50
Local Scotch	10.25	0	11.00
Ohio Strong Softeners No. 1	12.50	0	13,∩0
Southern Silvery, No. 1	11.50	0	11.75
Southern Silvery, No. 2	11.25	0	11.50
Southern Coke, No. 2	10.25	0	10.50
Southern Coke, No. 3	9.75	0	10.25
Southern, No. 1. Soft	10,25	0	10,50
Southern, No. 2, Soft	<b>10.</b> 00	Ø	10.25
Alabama Car Wheel	17.50	0	18.00
Jackson County Silvery	15.50	a	16.00
Other Ohio Silvery	14.25	0	14.50

The situation in Foundry Irons is unchanged in the Pittsburgh district. Quotations for that market are given as follows:

There has been some increase in the demand from consumers of Pig Iron in the Cincinnsti district. Pipe works have been the largest buyers, with nave been the largest buyers, with single transactions of 2000 tons each for 60 to 90 days' delivery, but the majority of business is formed by numerous small sales of no special significance in themselves, but quite considerable in the sggregate. Furnaces in the South already have a number of orders for delivery up to the first of the year and the smaller stacks are not disyear and the smaller stacks are not disposed to accept or at least solicit any but very small orders for delivery after the New Year, except at an advance in price. The larger furnaces, too, are decidedly firm, refusing orders which are even 5¢ ton under the current market rates. While there is no marked increase in activity among the leading industries consuming Iron there is evidence of a more confident tone. Taking all facts into considerinto account, it may be assumed that the market is not weak, and while it may lapse into temporary dullness, ow-

able for larger sales at higher prices after the first of the year. Quotations are as follows:

Southern Coke, No. 1	@ \$10.25
Southern Coke, No. 2 9.25	ā
Southern Coke, No. 3 8.75	Ø 9,00
Ohlo Soft Stone Coal, No. 1 14.50	® 15,00
Ohio Soft Stone Coal, No. 2 14.00	@ 14.50
Lake Superior Coke, No. 1 12.(11)	
Lake Superior Coke, No. 2 11.00	Ø 11.50
Hanging Rock Charcoal, No. 1., 10,00	
Hanging Rock Charcoal, No. 2., 15.50	<b>2</b> 16.00
Tennessee Charcoal, No. 1 13,00	@ 13.50
Tennessee Charcoal, No. 2 12.00	<b>(2)</b> 12.50
Bessemer 11.65	@ 12.00
Standard Southern Car Wheel 15.75	Ø 16.75
Lake Superior Car Wheel and	_
Malloable 14.25	O 14 75

The St. Louis market is reported as dull, and with no prospect of imas dull, and with no prospect of immediate improvement. There is an almost entire absence of inquiry, and the sales made are limited in quantity. A favorable feature of the market is the determined stand taken by the furnacemen, in refusing to shade prices. They argue that at this season of the year nothing will induce buyers to anticipate their wants, and if prices were cut 50¢ at on the volume of business would fail to show any increase. business would fail to show any increase. Under these circumstances a steady adherence to prices can be depended upon for the balance of the year. We quote as follows for cash, f.o.b. cars St.

dry ...... 9.50 @ 9.75 Southern Car Wheel ...... 16.50 @ 17.00

### Metal Market.

Pig Tin.-Prices have continued on the downward move during the week and a decline of about  $0.35\phi$  @  $0.40\phi$  is to be recorded, futures up to May being sold at the lowest rate. Buying has been very moderate. Consumers have purchased very indif-ferently, and jobbers bought in a moderate way only. It is estimated that there are now in sight for this and European markets 25,000 tons or more, and rumor has it that the foreign syndicate has completely tired of endeavoring to carry the load. The impression here is that their operations just center upon liqui-dating at the smallest possible loss. Some venturesome prophets have offered to wager that Tin will be sold this year at "eight pounds for a dollar," basing their opinion upon the weight of the supply in sight. Straits Pig in small retail lots from atore goes at about 17¢ # lb.

Copper.-Lower prices have been established and the market has a weak appearance. There is more pressure to sell and less inclination to buy, besides which an unfavorable influence has existed in the form of circumstantial evidence that the proposed agreement of producers is unlikely to be effected.

Jobbing business has been of comparatively small proportions, and prices for small quantities are unchanged on a basis of  $10\frac{1}{2}$  \$\vec{c}\$? Its for Lake Ingot. Sheet Copper in retail lots is quoted on a net basis of 15¢ # lb.

Pig Lead.—The demand from consumers has diminished to comparatively small proportions, yet prices are held fairly firmly. American Pig in small lots from store rules at  $3\frac{1}{2}\phi$  @  $3\frac{3}{2}\phi$   $\frac{3}{4}\phi$  lb.

Lead Sheet and Plpe.—The demand is extremely flat and the volume of inquiry gives no encouragement in regard to the ontlook. Dealers do not look for any marked improvement until spring. Prices are well maintained in accordance with the list, namely, at 5½ for Pipe, and 6½ for Sheet, with a discount of 20 %. As noted elsewhere the dealers in Plumbers' Supplies in this and the neighboring districts have this week formed an association for the purpose of maintaining harmony in trade action.

Spelter.—Dealings here have been on a moderate scale and the demand has undergone no improvement. Prices for small lots remain quite ateady on the basis of about  $4 \notin \textcircled{3} + 4 \notin$  for ordinary Western brands. This steadiness is attributed to conservative effering from primary sources of supply.

Antimony. — About the ordinary business is passing. Jobber's prices for small parcels are as follows: Cookson's,  $10\phi$ ; Hallett's,  $8\frac{1}{2}\phi$  id.

Tin Plate.—Quite a good business was done early in the week in spot stock, chiefly moderate-sized lots of ordinary Cokes and Ternes, which went at about the figures of last week. Later, however, business dropped somewhat and prices showed signs of weakening in sympathy with lower English quotations. Futures are somewhat flat, notwithstanding inducements of about 21¢. Concessions have offered in some quarters on December-January shipments. Shipments arriving from abroad have been rather lighter this week, and stocks are by no means ample nor the assortment complete. Brokers find it anything but easy to fill promptly orders for special sizes, and a great deal of interpurchasing is going on among the trade. Yet prices are weaker, if anything, and show no indication of present improvement. special London cable dispatch of November 21 to The Iron Age reports as follows on the British Tin Plate market: In Tin Plate there has been little doing and buyers of round lots have again reduced their bids. Makers are eager sellers at 9/9 for ordinary Bessemer cokes, at Swansea. There is more inquiry for small lots, odd sizes, but lowness of prices llmits business. Wasters are in exceptionally good demand. Many workmen have decided to accept 10 % reduction in wages. Shipments have been small the past week. Stocks amount now to about 249,000 boxes. Swanses quotations are as followa:

as rollo har			
Bessemer Cokes, IC 14 x 20	9/9	0	
Qiamona Cokes IC 14 v 20	10/	((1)	
T D Stool Cokes IC H x 20	0/0	((1)	10/
Ternes, 20 x 28	19.6	Ca.	( ) ( )
Charcoals, 1C 14 x 20	11/	Gr.	13/
Charcoais, 10 14 & 20			

Sheet Iron.—The demand for Black Sheeta is considerably quieter, but the Eastern mills are all sald to be comfortably supplied with enough business to keep them going until the end of the year. Galvanized Iron is in the same condition. Prices are somewhat less firmly maintained. Small lots of No. 27 Common Iron Sheets from store are quoted at 2.65%, but this price is shaded on desirable orders. Galvanized Sheets are ruling at 75 and 10 % off.

THE McLEOD & HENRY COMPANY, Troy, N. Y., Issue carda calling atten-

tion to the extensive line of Fire Brick of their manufacture. The back of the card gives an interesting table showing the distances from New York and the time of mail transit to the principal cities of this country.

## Chicago Report.

Scrap.--Railroads are forcing their Wrought Scrap on the market and selling at low prices. Other kinds are quiet. Dealers quote their buying prices as follows, Chicago delivery:

Per ne	t ton.	Per tb
No 1 Wronght Scrap \$	7.00	
Machinery Cast	6.00	
Mallochla Cast	5.00	
Store Plate (free of burnt)	4,00	• • • • •
Burnt Iron and Grate Bars	300	
Shoot Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
Sro	3.00	
Old Boilers-whole (Iron)	3.00	
" (Iron)—cut in single		
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3.00	
Turnings	4.00	
Horseshoes	7.00	2111
Copper Bottoms		6 ¢
Copper Clips and Heavy		7 ¢
Heavy Brass		6 ¢
Light Brass		3 ¢
Pipe Lead		$2\frac{1}{4}\phi$
Tes Lead		$2\frac{1}{2}\phi$
Zine		$2\frac{1}{4}\phi$
Rubber		$3\frac{1}{2}\phi$
The demand	nd is	A VETV

Anthracite.—The demand is very light. The following prices on carload lots of 12 net tons or over can be shaded by good buyers:

ny good on jerri	Υ.	Sam Cto
		gg, Sto.
	Grate.	
en 1 111	\$5.00	\$5,25
Chicago, Ill	5.00	5.25
Milwaukee, Wis		
Kansas City, Mo	8.20	8.45
Council Bluffs, Iowa	8.20	8.45
Council Dians, Lower St.	8.35	8.60
Lincoln, Neb	8.20	8.45
Sioux City, Iowa		8.50
Aberdeen, S. Dak	8.25	
Dubuque, Iowa	6.30	6,55
Dubuque, Towarra	6.50	6.75
Madison, Wis	7.50	7.75
St. Paul, Minn		
Burlington, Iowa	6.50	6.75
Des Moines, Iowa	7.95	8,20
Des broines, toward	6.30	6.55
Davenport, lowa	8.20	8.45
St. Joseph, Mo		
Leavenworth, Kan	8.20	8.45
Omaha Noh	8.20	8.45
Omaha, Neb		

### Colorado Anthracite.

COLORADO FUEL & IRON COMPANY.

CODOM	
Denver	\$8.00
Denver	8.00
Pueblo	
Colorado Springs	0.00
Landwilla	0,00
Choronne Wvo	10,00
Cheyenne, Wyo	
Missouri River	8.85
Missouri River	

The U.S. Fuel Company, Limited, 19 Park Place, New York, with a factory at Binghamton, N.Y., made an assignment on November 20 to Henry Worma. The company are manufacturers of "sestallt," a prepared fuel, and of stoves for its use, as well as of a charcoal used for distilling and rectifying purposes. They were incorporated in West Virginia in 1891, with Chas. L. Cammann as president and Gustav Frank as secretary and manager. The failure is attributed to the general business depression and inability to sell the goods manufactured by the concern. The schedules show Habilities, \$34,683, with nominal assets, \$20,086.

SUTTON & Co., New Orleans, La., workers in copper, brass and sheet iron, have dissolved partnership and Joseph Tabst continues the business at 92 Tchoupotoulas atreet.

### CONDITION OF THE

# Hardware Trade.

THERE is little change in the characacter or volume of business since our last report. The demand from the smaller trade ismostly in the way of sorting up orders, which in view of the near approach of the annual inventory are kept down as much as possible. The fact that stocks generally are very much depieted tends, however, to make the present requirements of the merchants greater. There is also a good deal of attention being given to the market now by the large buyers with a view to placing their orders for next season. The market is therefore being watched carefully, but with the result of discovering few indications of an early advance in values. In some lines prices are, however, so low that some conservative houses are disposed to consider it wise to purchase before long. The possibility of a sndden advance as the result of concerted action among manufacturers or as a reaction from extremely low prices is recognized.

Aavices from Chicago.—The demand for Shelf Hardware is considerably better than had been expected, and the volume of business is now so large that the month promises to surpass October. Seasonable goods have been in particularly strong request during the past week. All such articles as Stove Boards. Elbows, Stove Pipe, Coal Hods, Snow Shovels, Skates, Sleds, &c., have been called for in unusually numerous orders, in consequence of the very light advance orders entered during the fall. Merchants now find that their customers need the goods and must have them. The demand for Tin Plate has, however, fallen off; it is by no means so large as in October. Consumers and country dealers appear to have pretty thoroughly covered their immediate wants. Terne Plate is extremely dull with the close of the building season through the country generally. Tinware factories are still behind in deliveries, but manufacturers now expect to catch up with their orders in a short time. The most important event in the Hardware trade which has turned up recently is the advance in Hammers and Sledges, which came very unexpectedly and caught the great majority of the trade with very light stocks. This is taken as an inkling of similar developments which may be expected in other articles from this time forward. It is known that many goods have for some time been selling down too close to cost to be comfortable and opportunities to advance rates will be quickly embraced whenever they arise.

## Notes on Prices.

Wire Nails.—The Wire Nail market is characterized by a good deal of activity, the volume of business being fair, if not large, and the mills generally well supplied with orders. There are also many inquiries from the larger buyers in regard to stock orders for next year's trade, and it is reported that some large purchases have been made. A good deal of negotiation is going on in regard to prices, buyers hoping to obtain somewhat better figures than the low quotations now current. The tone of the market is not at all atrong, and lower prices are ruling than a few weeks ago. The market is represented by the quotation of 90 cents for carload lots at mill, but this figure has been more or less freely shaded.

Advices from Chicago.—Manufacturers' agents report a much larger movement during the past week. Inquiries are now heavier than for several weeks. Factories which had been running single turn during the past month have atarted up double turn, in order to promptly fill their orders and prepare for the coming busy season. Prices show no disposition to advance as yet. Johbers quote small lots from stock at \$1.10

Cut Nalls —The Cut Nail market sympathizes with Wire Nails and is somewhat irregular and slightly lower. Small lots from store in New York are held at \$1 to \$1.05.

Advices from Chicago.—Nothing special has occurred in this line. Manufacturers report a fair trade for the season, and the local factory continues steadily employed. Prices are unchanged, jobbers quoting small lots at \$1.

Barb Wire .- The Barb Wire market is evidently in an unsatisfactory condition, and within the past week or two further weakness has developed not-withstanding the fact that inquiries are more frequent and the volume of business larger. The lack of an understanding among the manufacturers, tostanding among the manufacturers, to-gether with some outside competition, is evidently having its influence on prices. The market is represented by the quotation of \$1.85 to \$1.90, at Pitts-burgh and some other points, but it is understood that lower prices have been made more or less freely. There is little change in the figures at which the jobbing trade are selling small lots from stock. Baackes & Co., Pittsburgh, have issued circulars to the trade in which they refer to their facilities for furnishing Barb Wire, and quote for Novem ber shipment from Joliet, Ill., or Pittsburgh, \$1.85 for Galvanized and \$1.50 for Painted, with an advance of 5 cents for December shipment and a similar advance each month until April, for which month \$2.10 and \$1.80 are quoted for Galvanized and Painted, respectively.

Advices from Chicago.—A better business is reported by both manufacturers and jobbers. The trade has again begun to take hold much better and sales of carload lots and mixed carloads of Wire Nails and Barb Wire are much more frequent. Heavy inquiries are made for Barb Wire to cover the requirements of large dealers during the first half of next year. The outlook has thus decidedly changed with regard to the demand. Manufacturers, however, have not yet put themselves in perfect shape with regard to sustaining prices, but the threatening elements have so far not done serious damage. Extremely low quotations have been distributed broadcast to the trade by an Eastern house who recently leased a mill in the West, but they are of a peculiar character and the other manufacturers are inclined to pay but little attention to the competition, as the factory has only a limited capacity. Jobbers quote small lots of Galvanized from stock at \$2.20 to \$2.25, and for direct shipment from factory at \$2.10.

Family Grindstones.—The Cleveland Stone Company, Cleveland, Ohlo, are offering Family Grindstones at the following prices:

	Per	Dozen.
6 and 7 inch		\$5 00
8 and 9 inch		5.75
10, 11 and 12 inch		7.75

Loose Grindstones, 30 to 200 pounds each, are quoted at \$7 to \$9 per ton. They will also be pleased to furnish quotations on Mounted Grindstones. These prices are f. o. b. quarries.

Cordage.—The market is very quiet, the volume of business being exceedingly small. Prices are somewhat lower, especially in Sisal and New Zealand, there being comparatively little demand for the latter. Present quotations for large lots are as follows:

								Ce:	nts.
Manila, base		٠.			 ٠.				714
Sisal, base									
New Zealand,	bas	e.	 	٠.	 ٠.				414

Ash Sifter.—Streeter's Sersible Ash Sifter, an illustrated description of which was given in our last issue, as manufactured by N. R. Streeter & Co., Groton, N. Y., New York office, W. H. Jacobus, 90 Chambers street, is sold at a list price of \$6 each, subject to a discount of 20 per cent.

Vise Jaws for Tubing.—In our issue November 10 we gave an illustrated description of Spring Vise Jaws for Tubing as put on the market by the Newark Machine Tool Works, Newark, N. J. These Jaws are sold from the following list:

3 inc	ch.																			\$0,90
31/4																				0.95
4	6.																			1.00
41/4	٠.																			
5 -	6.6																			1.20
6	"						٠			٠		•	-	•	•	•	•		٠	1.40

The above prices are net in less than dozen lots. In dozen lots a discount of 10 per cent. is made.

Glass.—Since our report of last week nothing of interest has occurred in the American Window Glass market. Demand continues fair, but not up to what is usually considered a full fall trade. An increase is reported in orders from jobbers, but even these are not as large sa could be wished. Prices appear to vary in proportion to the amount of orders individual manufacturers have on their books and also in proportion to the amount of confidence they have in the immediate future of the Glass trade. A fair average mill price for Glass in large quantities is given as 90 per cent. discount for single and 90 and 5 per cent. discount for Double Strength Glass, at Pittsburgh. Importers report a fair business at 70 per cent. discount from Window Glass list of October 1, but there is reason to believe that in some instances this price is shaded.

Old Metals.—The demand for Scrap Iron is very fair, but prices show no improvement as yet. Old Metals of other descriptions are quiet at former rates. New York dealers are huying at about the follows quotations:

Heavy Copper	D D	7 #
Light and Tinned Copper	D D	6140
Heavy Brass	B D	18/19
Light Brass		
Lead		
Tea Lead		
Zinc		
No. 1 Pewter		
No. 2 Pewter	D 🐃	5 \$
Wronght Scrap Iron. # gross		
ton\$7.5	<i>w</i> w	\$5.00

Old Rags, Paper, &c.—Business shows some improvement, the demand for Paper stock being heavier than for some weeks. Prices remain, however, at their former level. The following quotations represent about the rates paid by dealers, New York delivery:

No. 1 White Rags	Th Ch	3 174 1	(C)	36	1
Hard Sizel White Shavings	D.			21/4	
No.1 White Book Snavings	b			21,	
No.2 White Book Shavings	b	1	(12)	11/0	ŧ
Light Book Shavings	Ъ	•	6.0	0,0	
No. 1 Mixed Shavings *	L	7.5	Œ.	1 4	
No. 2 Mixed Shavings >	D			8 0	
No. 1 Printed Books	D		(4)	140	
Ordinary Mixed Books?	Ъ	36	10	340	ŧ
Newspapers	D			2-50	ż
No. I Manila Paper	D	3/4	0	1 (	
No. 2 Manila Paper	D	98	4	3/4	ŧ
Bogus Paper	D	,		361	ø
Common Paper	D			34	8
Straw Chips	P			36.	\$
Binders' Clippings	D			- 361	ø
Jute Butts	D			1%	\$
No. 1 Jute Bagging	Ъ	I	$-(U_i)$	1731	Ψ
Mixed Bagging₩	D			1	
No. 2 Bagging₩	Ъ	- 14	(0)	%	ø
Hemp Twine	Ъ			2	
Manîla Rope₩	D	2			
Jute Rope₩	В	11/4	0	134	¢
Mixed Rope	Ъ	- 3/4	0	16	¢

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, 🐺 🕩	Œ	\$0.03%
Rubber Shoes, carloads, de- livered at factory, \$15	a	.04%
Rubber shoes, less than car- loads, \$\mathbb{B}\$ ib		.04
Large Hose, \$\pi\$ ton	0	15.00
White Wringer Rolls, \$ 15 White Syringes, \$ 15	40	.03%

# The Illinois Pure Aluminum Company's Catalogue.

The Illinois Pure Aluminum Co., Lemont, Ill., issue an interesting catalogue and price-list, illustrating a large and varied line of Aluminum Cooking Utensils, steam jacketed Kettles, other vessels and many specialties. The manufacturers claim for these goods that they are entirely free from poison, that they are practically everlasting, that in them food may be cooked quickly and without scorehing, that they are three and one half times lighter than copper and that they are easily cleaned. The following partial list of the more prominent goods manufactured by the company, together with list prices, will afford an idea of the scope of the line, also of the cost of the goods. The following prices are subject to a discount of 50 per cent.:

Lipped Sauce Pans, with Handle.

																														ŧ	ı	U	II	1	ı	1	nı	81	3
Quarts.												Ī	٠,	n	1	i	٠ħ	•	•	1										1	ľ	e	I	•	d	1	2	eī	1
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Lipped Preserving Kettles.

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2																				3	1:	3.	h	Ū.						d		٠	٠	٠	٠				\$19.60
9																					ï	t	71	n															15.00
- 1																				•	,	,	13																12.0
4	٠	٠	•		٠		•	٠				٠	•		•	٠	٠	•		- :	,,	: `	C				•	•	•	•	ľ		Ť				•		22.76
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### Baking Pans.-Per Dozen.

Inches. Polished Satin tinish.	表7 (N)	\$12.50	\$15.00	表19.50	\$24.50

### Cast Tea Kettles.

Quarts Each	\$5.60	6.0	6,50	6,80

### Spun Tea Kettles (Seamtess).

Quarts Each	\$5,10	$\frac{5}{5.60}$	6,00	6.50	6.80
Spun	Coffee	Pots	(Seaml	ess).	

Pints 3	4 3	5 6	8
Per dozen \$30.60	33.60 35	.70 38.30	43.30

Spun Tea Pots (Seamless).

Pints Per dozen		4 37,60	39.70	6 42.30	S 47,50
	Windsor	Sauce	e Pan		

 Quarts
 1
 14
 2

 Per dozen
 \$10.80
 16.20
 21.00

 Quarts
 3
 4
 5

 Yer dozen
 \$24.20
 36.00
 34.40

Windsor Kettles,

In addition to the goods of which prices have been given, the company manufacture oul of Aluminum the following articles: Dippers, Drinking Cups, Cups and Saucers, Child's Night Food Cups, Soup Tureens, Funnels, Pancake Covers, Hotel Pans, Stock Pots, Fry Pans, Wash Bowls, Spittoons, Butter Dishes, Cracker Bowls, Camp Cooking Outfits, Sanitary and Water Pails, Water Pitchers, Candy or Confectionery Pans, Glue Kettles, Milk or Rice Cookers, Chafing Dishes, Spoons, Spoon Holders, Sugar Bowls, Peppers and Salts, Tea Strainers, Horse Bits and other specialties. The catalogue, which is of more than usual interest as illustrating a relatively new and important line, contains a large number of testimonials relating to Aluminum ware.

### Trade Notes.

THE CLAYTON AIR COMPRESSOR WORKS, Havemeyer Building, 26 Cortlandt street, New York, are sending out copies of their new publication on the "Uses of Compressed Air," citing 70 different applications of air under pressure. It is of general interest to all users of power.

THE CAROLINA MICA COMPANY, for whom J. A. August, 519 Twelfth street, N. W., Washington, D. C., is sole agent, issues price-lists of their mica. One list relates to first quality N. C., mica, the second to superior specked mica and the third to spotted mica. Tables of sizes and prices are given.

THE FIELD FORCE PUMP COMPANY, Lockport, N. Y., are about to build a large addition to their plant.

WITH THE COMPLETION of their new extension the aggregate floor space in the plant of F. E. Myers & Bro., Ashland, Ohio, is nearly 80,000 square feet. This firm, we are advised, are doing an annual business of nearly \$400,000. Two hundred men are employed in the shop, while 17 men represent the firm as salesmen in the different States of the Union. The company are also doing a gratifying export business.

WE ARE ADVISED that the statement that a large lot of new machinery has been installed in the plant of the Sharon Iron Company, Limited, Sharon, Pa., is without foundation. The statement is also untrue that the sheet mill of this concern has been closed down for 18 months. On the contrary, this department has been in full operation right along.

THE McDaniel & Harvey Conpany, Philadelphia, report that they are running their sheet iron mills at their full capacity. They are about closing a contract for rebuilding their bar mill, at North East, Pa., which was burned a short time ago. Its equip ment will be about the same as the old mill, with the exception of the engine, which will be a 250 horse-power Reynolds-Corliss, the order having been

given to the E. P. Allis Co. for the same.

ALL THE PRELIMINARIES in the way of procuring a charter, making surveys, &c., for the proposed iron and steel mill at Hyde Park, Pa., have been completed and the order given to rush the work to a finish. The \$75,000 stock has all been subscribed for and the following officers elected: President, J. D. Orr; vice president, J. M. Flscus; secretary, E. F. Schanwecker; treasurer, T. S. Irwin. The main structure will be built of iron, 113 x 175 feet; annealing house, 50 x 100 feet; wareroom and packing house, 50 x 100; boiler house, 65 x 75 feet. The mill will be fired with natural gas, and its product will include black plates, sheet steel and iron. It is intended that the plant will be in operation by March 1.

ARRANGEMENTS are being completed for the establishment of an extensive mica plant at Kansas City, Mo. B. J. Connor and W. H. Sills are mentioned as among those most largely interested in the project.

THE MONARCH STOVE COMPANY OF Mansfield, Ohio, call attention in their advertisement this week to the fact that the manufacture of Monarch vapor and gas stoves is in new hands, and that the company have large facilities for turning out the goods. The stoves are referred to as possessing interesting improvements, are highly finished and of handsome design.

The Smirk Refrigerator Company, whose Chicago office and wareroom was destroyed by fire October 15, are nowlocated at 254 Madison street, near Market. Their loss will not cause inconvenience in any way, as they have a stock of goods at their factory which will enable them to ship promptly. They have in preparation a new catalogue, describing improvements planned for the season of 1895, which will very shortly be ready for distribution.

Arrangements have been completed by which W. W. Pryor & Co., 81 Chambers street, New York, will represent John Stortz & Son of Philadelphia as agents in New York, New Jersey and the New England States. Messrs. Stortz & Son manufacture lines of Tools for mechanics, plumbers, tinsmiths, painters, weavers, cigar makers, butchers, upholsterers, besides many Hardware and House Furnishing Specialties, including Oyster, Bread, Cheese, Farrier and Butcher Knives, Box Hooks and Scrapers, Calking Irons, &c.

## Undervaluations of Imported Enameled Ware.

Reference was made in these columns last week to the fact of the arrest of a former senior partner in a well-known New York importing house, now dissolved, on a charge brought by the Custom House officials at this port of undervaluations to the extent of \$100,000 in involces of imported enameled from ware. Inquiries among the leading American manufacturers of and dealers in enameled ware bring out the fact that the impression, or rather the conviction, has long existed among them that enameled goods of German manufacture have for years been systematically sent into this country under false valuations. Comparison of the prices at which these goods are sold in Europe with those at which they are offered here, together with the knowledge possessed of the prime cost of manufacture in both continents, proves to the satisfaction of the American makers that

the foreign goods could not be sold here with profit at the rates at which they have been in many cases offered, provided the full duty on their real value had been paid. The alleged offender in the present case has been held in heavy bail, and the result of the present proceedings will be watched with great interest by the trade. It is rumored that a similar condition of things has been existing for some time in the case of enameled ware imports into Canada.

### CONTENTS.

Ed	itorials :	PAG	E.
- (	Cost and Competition		35
	Deposits from Water In Kitchen B		
1			
	ers		35
ι	Inreliable Industrial News		35
1	New York City's Refuse		35
	e Letter Box-		•
- (	Corrosion of Iron Plpe		36
1	Vater Front Hinders Baking		36
F	Hanging Gutters on High Buildings	š	36
	Sheet Metal Launch		36
			36
	Cleaning Solder		
1	Fossil on the Rampage		36
1	Well Problem		36
	e Anthracite Situation		37
			37
A.	Trick of the Trade		37
ER	ectric Hanging Lamp. Illustrated.	• • • •	01
Pl	umbing and Gas Fitting-		
	The Eastern Supply Association		38
	A Novel Shower Bath. Illustrated		38
4	Novel Shower Dath. Illustrated	•••	•
- 1	The Mosely Suction and Force Pur		
	Illustrated		38
- 7	The Simplex Lead Pipe Cutter. Ilit	19	39
7	Fraps and Vents		39
H (	eating and Plumbing-New Work	ши	10
	Contracts		40
Ce	rrespondence School		41
	eam and Hot Water-		
			42
	A Disciple of Sherlock Holmes		
	Crane's Telescoping Floor Sleeves. I		42
1	Heating Notes		42
1	New Trade-Mark. Illustrated		43
- 7	Heating Estimate Blank		43
			43
R.I.	ashings	• • • •	10
	ne Tin Shop-		
1	Patiern fer Irregular Flaring Arti	cle.	
	Illustrated		41
O1	eap City Made Gas in Philadelphia		45
Cr	leap City Made Gas in Filladelphia	••••	
	neap Gases	• • • •	45
	n Plates—		
1	Home Competition for the Welsh	Tin	
	Plate Industry		46
,	The Tin Plate Wages Scale		46
~	The 11h Flate wages scale		46
	rap		
Ne	ew York Garbage Disposal	• • •	47
Tì	ne Retail Store-		
	Knapp's Combination Wood and M	etal	
	Faucet, Illustrated		48
	Streeter's Sensible Rat Trap No.		
			48
	Illustrated	•••	
	Brady's Safety Wire Cutter. Illus.		48
	Brady's Safety Wire Cutter. Illus. Improved Perfection Tips. Illus		48
	Tap and Die Holders. Illustrated		49
	The Selling of Bicycles by Hardw		
			49
	Merchanis	•••	10
	ove Trade Notes—		
	The Local Stove Trade		50
	The Ohio Stove Trade	• • • •	50
	Western Stove Freight Rates		50
	A Scientific Remedy		50
	The Aurora Stove Works		51
	Odd Plates		51
	factors of Capitant Coods in I	in a	01
	anufacture of Sanitary Goods in I		
	land	• • • •	52
T	rade Report—		
	The Iron Market		53
	Metal Market		53
	Chicago Report	• • •	54
	Circago reportante de antimora Trada	• • • •	
	Condition of the Hardware Trade		54
		• • • •	54
	The Illinois Pure Aluminum C		
- 19			55
-	Trade Notes		56
	Undervaluations of Imported En		
	cled Ware		. 56
	Metal and Miscellaneoùs Prices	• • • •	57
L	abor Exchange-		
	Help Wanted		59
	Stuations Wanted		i 9
1			

# Metal and Miscellaneous Prices.

### CHICAGO, NOVEMBER 22, 1894.

4.	
Tin-	Irondale, AAA, tissue paper packed:
<b>Streite</b> plgs	IC, full weight 11 x 2)
Imported Tin Plates—	frondale A A:
Charcoal Plates.—Bright.	1C, full weight, 14 x 20
Guaranteed Plates command special	
prices, according to quality.	Trondale A:
[IO, 10 x 14@ \$5.75 [IO, 12 x 12@ 5.75	FC, full weight, 14 x 20
IC. 14 x 20@ 5.75	Irondale B:
Oalland and IX. 10 x 14 7.59	1C, 100 lbs , 14 x 20
EstynGrade 1X, 12 x 12 7.50	Irondale C, IC, 14 x 20, 100 lbs 4 5
IX, 20 x 28 @ 15.00	1°, 14 x 20, full weight 1.7 Each extra cross 75¢.
DX, 12% x 17@ 7.25	Coke Plates Bright
IG, 10 x 14	
Allaway Orede, IC, 12 x 12	R. W. & B., IC, 14 x 20, 108 lbs 15.0 Old Hundred, IC 14 x 20, 100 lbs 4.7 R. W. & B., IC, 20 x 28, 216 lbs 10
IX, 14 x 20@ 7.00	Old Hundred, IC, 20 x 28, 210 lbs 9.3
(12, 20 1 25 11:00	Handma Dlatas
Ooke Plates-Bright.	Palm, IC, 20 x 28@\$10.6
Per box.  1C, 10x14.14x20	Falm, IX, 20 x 28
IC, 14x20.90 b @ 4.5 '	Empire, IX, 20 x 28
10, 14320, 100 5.	1X, 20 x 28
'X, 10x14, 14 x 20@ 6.25	Alaska IX, 20 x 28
	Special, IC, 20 x 28
Charcoal Plates,—Terne.	Palm, IC, 20 x 28
Suaranteed Plates command specia	Westmoreland:
Prices, according to quality.	IC, 14 x 20
IC. 14 x 20 \$5.00 20 x 28 \$10.00 IX. 20 x 28 \$12.50	
IX. 20 x 28@ 12.50	Kenwood ;   IC, 20 x 28
Weronster Brand and equal.— IC. 14 x 20 @ 5.25 IC. 20 x 28 @ 10.50	Furniston:
1X, 14 x 20 6 0.50 20 x 28 6 13.00	1C, 20 x 28
	1C, 20 x 28 10 0 Irondale AA, 1C, 14 x 20 11 Irondale A, 1C, 20 x 28 10 J Irondale B, IC, 20 x 28 10 J Foob avtra cross \$1 50
Tin Boiler Plates,	Fach extra cross \$1.50.
Per box of Per box of 100 sheets. 112 sheets.	Challenge, IC, 20 x 2810.3
T 14 T 28 \$11.75 \$11.25	Juno:
X, 14 x 28.     \$11.75     \$11.25       XX, 14 x 28.     13.00     13.76       X, 14 x 31.     13.00     12.50       XX, 14 x 31.     15.00     15.00	1C, 14 x 20
<b>XX</b> , 14 x 31 15.00 15.00 Per hox of	Illinois, Old Method:
56 sheets.	IC, 20 x 28
<b>XX. 14 x 56 \$20,50</b>	E. L.:
X, 14 x 60 32,25	IC, 20 x 28
American Tin Plates	Jessia:
***************************************	IC, 20 x 28 10.0
Charcoal Plates.—Bright. Mineryn:	IC, 14 x 20 8,3
1C 10 x 14, 12 x 12, 11 x 2085, 3746	1X, 11 x 20
1X, 10 x 14, 12 x 12, 14 x 20, 6, 62%	1C, 14 x 20.     8.       1X, 14 x 20.     10.       1C, 20 x 28.     \$17.0       1X, 20 x 28.     20.4
Florence	H. B. L., Old Style:
10, 10 x 14, 12 x 12, 14 x 20, \$5.75 IX, 10 x 14, 12 x 12, 14 x 20, 7.50	1C, 14 x 20
Palma.—	1C, 14 x 20. 7. 1X, 14 x 20. 8. 1C, 20 x 28. 14.5 1X, 20 x 28. 16.
IC, 10 x 14, 12 x 12, 14 x 20., 6.25 IX, 10 x 14, 12 x 12, 14 x 20., 8.00	Continuous Roofing Tin.
Usual extra for other crosses and 20 x 20	Merchant's Tandemper roll, 2.
nouble these prices.	

[	Sheet Iron-
5.75 7.50	Black.
	Commen
5.25	American Reflord. Nos. 10 to 16 & D 2 1 10# 2 8-10#
5 25 1,75	Nos. 10 to 16.
- 1	25 and 26 b b 2 4 10¢ S 1 10¢ 27 b b 2 5 10¢ S 2 10¢
5,00	27 ¥ 5 2 5 10¢ 3 2 10¢
	Russia, Planished, &c.
1.75	Genuine Russia, all numbers13¢ net.
4.8>	Genuine Russin, sit numbers18¢ net. Patent Planished > 5 A, 10%(¢; B, 9% ¢ dis. 5%
4 50 1,75	Craig's Polished Sheet Steel8346
.,,,,	Galvanized.
	Juniata or first qualitydis.75%10%
5.00	Copper-
5.00 4.75 0.00	Ingot.
9,50	Lake
	Sheet and Bolt.
0,00	Discount on old list except advance on cold rolled pollshed botter sizes to 25¢), 25%.
0,00 3,25 9,75	on cold rolled pollshed boiler sizes to
1.50	Copper Bottoms.
1.10	
3.50	Discount on old list, 25%. Seamless Brass and Copper Tubes.
3.50	Base price, 17%#, Chicago, with extras
6,50 9-50	Base price, 1784, Chicago, with extras eccording to size, Copper, Bronze and Gilding Tube, 84 * n additional.
8.00	
	Brazed Brass Tubing. (100 % lots.)
5 95 0.50	(To No. 19 inclusive.)
	Discount, 40%. Plain, 34 Inch up to 2 inch
0,50	Plain, 5, inch up to 5, inch
	Plain, % inch up to 16 inch
0.00	Plain, 5-15 inch up to 38 inch
0.50	Plain, 3-16 inch up to 4 inch 1,00
0.10	Plain, 2 inch up to 3 inch
0.50	Plain, 3 inch and largerSpecial.
	Bronze and Copper3¢ advance
	Roll and Sheet Brass. (100 To lots.)
	Discount, 40%.
3.50	Slab Spelter-
	Western Spelter4¢
1.00	
	Sheet Zinc-
0.50	600 m casks. \$1.75 800 m casks. 4.05 Loose sheets. 5.05
8,50	Solder-
0,00 7,00 0,00	Extra Wiping
17,491)	
7.00	The prices of the many other qualities of Solder in the market indicated by pri-
7,00 8,25	vate brands vary according to composi-
4.00	
	Antimony -
2.75	Hallett's

Lead
80ft Plg Lead. 3566 Bar 367 Pipe 5566 dis 106 Block Tin Pipe 3566 Sheet 66 dis 108
Pipe
Short Tin Pipe
Wrought-Iron Pipe-
Wrought-fron Pipe-
1 Da and under Gaiv 60
116 and over, Plain
Botter Tubes that the 24 1900 70610
Casing, list Nov. 16, 1892
14 and under, Plain
1892. 47.5 Steel Boiler Tubes. 27.4 Cold Drawn Seamless Steel Tubing. 405
Cold Drawn Scamless Steel Tubing 105
Cast-iron Soll Pipe— Cast-iron Soll-Pipe, Tarred, sixes 2 to 6 inches, inclusive. dis 702105 Other sizes. dis 603
inches, inclusivedis 70&105
Other sizesdls 60%
Leader Pipes—
Austin's Corrugated651
Leader Pipes— Alendroth's Galv' Spiral Riveted
Ritchie's Spiral Lock Seam, Galv'd 604
Austin's Spiral Ribbed Pipe
only) Corrugated
Adjustable
Furnace Fittings— Discount from Excelsior Steel Furnace Co.'s list
nace Co.'s list50
Steel Poofing
Perfection \$3.10 square Climax \$2.10 square The Lloyd Spanish Tiling \$1.50 square
The Lloyd Spanish Tiling \$1.50 square
Metailic Shingles-
Cushman's \$2.00 square
dietenant & Co. a Spanien 11ian;
Copper, is ob
Copper, 14 08\$35.00 square
Cushman's. \$2.00 square Merchant & Co.'s Spanish Tiles: Copper, 14 0s. \$38,00 square Til. \$9.75@\$14.25 square Steel, painted. \$9.00 square
Drain Pipo-Tile.
Drain Pipo-Tile.
Drain Pipo-Tile.
Drain Pipo-Tile.
Drain Pipo-Tile.
Drain Pipo-Tile.
Drain Pipo-Tile.
Drain Pipo-Tile. Discount from list
Drain Pipe-Tile.
Drain Pipo-Tile.  Discount from list
Drain Pipo-Tile. Discount from list
Drain Pipo-Tile. Discount from list
Drain Pipo-Tile.  Discount from list

### NEW YORK, NOVEMBER 23, 1.894.

The following quotations are for small lots.

Aluminum-
No. 1 Aluminum (guaranteed over 98% pure), in rolling ingots
pure), in rolling lagots
Bmall lots
Ton lots & D. 58¢
No. 1 Aluminum (guaranteed to be over
98\$ pure), in logots for remelting:
Small lots b, 60¢
100-b lots
No. 2 grade (guaranterd to be over 94%
pure Alumiaum), cast in ingots for re-
melting:
8mall lets
100-b lots. # b, 53¢ Tou lots. # b, 50¢
Antimony-
Hallett's & D. 8%¢
Brass—
Planishednet
Roll and Sheet25@30%
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
List April 9, 1894.
Plain Round Tube. Per m. ]
%-in. up to 2-in
12 to no to 54-10 88
41 0
6-16-in.up to 36 in
6-16-1n.up to \( \frac{1}{6}\). \( \frac{1}{6}\
8-16-in.up to 16-in
Smaller than 16-in Special
8 in. and larger
2 in. to 3 in. to No. 16, incineive, 28
The state of the s
Copper and Bronze Tubing-

Conductors-	
Corrugated. Round or Sque	sre-
Galvanized.	60%
Tin	60%
Spiral Riveted-	
Galvanized	60%
See also Elbows and Shoes: E	
Trough Miters; Strainers,	
ductor.	
Conductor Strainers- Strainers, Conductor.	-See
Copper-	
:   Bottoms, Pits and Flats 19¢ 🕸 🗈	, net
Lake	10174
Ansonia Grade Arizona	10 #
Ansonia Grade Casting	
Planished156 P D. net.	
Tubea — See Seamless E	
Tubes.	7 (488
Eave Troughs-	
	0.10
Lap or Slip Joint, Galvanised60 Lap or Slip Joint Terns	60%
Eave-Trough Mitres-	
Lap or Slip Jointlis	t, net
Elbews- Plain Adjustable-	
Tin	70%
Galvanised	70≰
Crimped Tubing—	884
Stove-Pipe-	
To Make Them Diagram	
Buffalo Four-Piece,	
Bunalo Four-Piece,  4 5 5 5 6 7 inch.	doz
Bunato Four-Frees. 4	doz.

1	Elbows and Shoes-
	Flat Orimp,
١	Tin
	Corrugated.
٤	Flat Orimp.
	Galvanized60%
	Tin60%
'	Galvanised60%
	•
9	Iron, Sheet-
	Black. Common R. G. Cleaned
	American American
t	av
,	
1	Nos. 17 to 21 \$\frac{1}{2}\$ \$\
,	No. 98 10 10 1
9	American B. 11
	Russia, Planished, &c.
	Genuine Russia, accord-
	ing to assortment P. D., 11@111/4# Patent Planished P.D. A. 10#: B. 9#. 5%
.	Craig Polished Sheet Steel # 10 856
'	Galvanised.
Į	221
ı	Nos. 10 to 16
-	Nos. 17 to 21
١	Nos. 25 to 26
1	
1	No. 28
	No. 29
	Lead-
	American Pig3%@3%¢
٠	Bar
- 1	Elpe v v 0740 47/8

Tin Lined Pipe
Metal, Expanded-
Manufacturers' list No. 5.           Latbing         105           Fencing, Painted Sheets         905           Netting, Painted Sheets         205           Door Mats, Galvanized         385           Window Guards, Paneled         185           Tree Guarda, Paneled         185
Mitros, Eave-Trough-800  Eave-Trough Mitres.
Paints, Olia &c
Lead, Amn, White, in oil
Raw, Fgal
ipirits Turpentine:
Putty: in barrels and 1/4 bbls
Asphaltum, Trinidad', Refined, \$
Cosl Tar Felt, 3 Ply, % roll 108 eq. ft. \$1.85 Roofing Plich % bbl. \$2.25

Old ) 14 x 20.... 5.50

		_
Pipe, Drain	Strainers Conductor—	P
Iron Soll-	Tin, Pigs and Bars-	18 8
Fron   Soll   "Standard "Pipe, 2 to d Inches 65&104   Fittings, Pipe, " " " 65&10x104   Extra Heavy Pipe, " 65&10x104   Extra Heavy Pipe, " 65x10x105   Large sizes of both Rinds 65x104   Extra sizes of both Rinds 65x104	Banca, pigs, * b	В
Fittings, Heavy Pipe," 65&10x105	met Di	Si
Fittings for both kinds	Tin Plates— American Terme Plates— Alaska (re-squared) 1C, 14 x 20 \$0.50 Alderly, extra quality, IC, 14 x 20 5.024 Allegheny, IC, 14 x 20 4.50 1X, 14 x 20 5.75 Anchor IC, 11 x 20 5.375 Apollo Roofing, IC, 14 x 20 5.50 1X, 14 x 20 5.50 Atlantie, IC, 11 x 20 5.25 Black Blagmond (Extra Coaled).	S
Pile, Spirat-	Alderly, extra quality, IC, 14 x 20 5 6219	Si T.
Mack and Size Wool-	Allegheny, IC, 14 x 20 4.50 1X.14 x 20	T
Fitches for both kinds. 65x10x Fi e, Spirat 60x 10x 10x 10x 10x 10x 10x 10x 10x 10x 1	Anchor IC, 11 x 20 1.3749	T
Hlag Wool, extra 44 8844	IX, 14 x 20 6.50	
Rock Wool, ordinary24 274 Book Wool, extra74 48944		T
Rosin-	1C, 14 x 20 Banus (Extra Coated), IC, 20 x 28, 11,50	T
Common and Good—Stratned           Rosin, C. & D.         * bbl. \$1.394\$1.40           Bosin, E. & F.         * bbl. \$1.394\$1.40           Rosin, G. & H.         * bbl. \$1.405x82.10           Bosin, I. & K.         * bbl. \$2.40x82.05           Bosin, I. & K.         * bbl. \$2.95x83.10           Bosin, M. & N.         * bbl \$2.95x83.10           Boamleas Brass Tubes.net         \$hoes and Shoes.           Elsta Dooflogs	Bonus (Extra Coated), IC, 20 x 28, 11,50 IX, 20 x 28, 14,50 Boston IC, 14 x 20 B, 25	ט
Rosin, E. & F # bbl. \$1.05481.75	Brooktyn, IC, 11 x 20	U
Bosin, I. & K Whill \$2,40@\$2.65	Central, IC, 14 x 20 4.75	λ.
Seamless Brass Tubes net	Climax, IC, 14 x 20	11
Shoes and Elbows-See El-	Cort's On Scyle IC 14 x 20	Ze
Siato Routing	Dunlap's Double Dipped, 1C, 14 x 20 8.25	-
Ascording to size, f.o.b. cars, Quarry Station.	Domestic, IC, 20 x 2812.00	AB
Zennsylvania:	Empire, IC, 14 x 20 5.12%	B
Tennsylvania:  Best Bangor, # sqr\$3.25@\$4.50  Pen Argyle, # sqr\$7.0@ 4.00  Peach Bottom, # sqr4.75@ 5.80  Peach Bottom, # sqr4.75@ 4.25	Eureka, IC, 20 x 2810.00	C
Peach Bottom, ♥ sqr 4.75@ 5.80   Wo. 1 Chanman, ₩ sqr 3.90@ 4.25	Excelsior, IC, 14 x 20 4.75	E
Ro. 1 Chapman, ¥ sqr 3.90@ 4.25 Lehigh Slates, ¥ sqr 3.00@ 4.50	Flag. IC. 14 x 20 4.25	F
Vermont: Bea Green, # sqr 2.50@ 2.75	Florida, IC, 11 x 20	ř
Purple, # sqr	Freeport (Hand dipped and Resquared).	G
See Green, # sqr.   2.50@ 2.75	Bonus (Extra Coated), IC, 20 x 28, 11, 50	H
	Golden Star Old Style, IC, 20 x 2815.00	l is
Solder— 11以@12# No. 1	Grace, IC, 14 x 20	L
No. 1 92.610	Hamilton's Best Redipped, IC, 14x20 7.75	M
rands vary according to composition.	Hickory (Resquared), IC, 14 x 20 5.50	M
rands vary according to composition.  Soldering Fluids— Concentrated Soldering Flux.	Juno, IC, 14 x 20	N
	IX, 14 x 20 8.00	N
In barrels, \$ D	Laufman's Apollo (Resquared), IC,	-
Smaller quantities. \( \Psi \) \( \begin{align*}{0.00000000000000000000000000000000000	14 x 20	N
\$1.50 for carboy or barrel; money re-	14 x 20. 8.25 Leominster, Extra Coated, IC, 14 x 20.6.37 to	N
Perfection Soldering Flux.	Lion (Stamped), 1C, 14 x 20 5.75	N N
Perfection Soldering Fittz. No charge for package. Bbls., about 500 b. \( \P \) b. \( \S\) 6 \( \Lambda \) \( \Lambda \) be \( \Lambda \) \( \P \) b. \( \Lambda \) \( \Lambda \) \( \Lambda \) \( \P \) b. \( \Lambda \) \( \Lamb	" IX, 20 x 28	N
bbls, about 800 D. * D46	Maple, IC, 14 x 20 5.75 Merchant's Roofing (Resquared).	0
75¢ extra for keg.	IC, 14 x 29 7.50 Weyrer Boofing, IC, 14 x 20 7.75	P
Yager's Soldering Salts.	National, IC, 14 x 20	P
Large quantities, per b	New Castle Old Method,	P
Snelter-	Leominster, Extra Coated, IC, 14 x 20. 6, 37% Llon (Stamped), IC, 14 x 20. 5.75 Lulu, IC, 29 x 28. 10.50 Maple, IC, 14 x 20. 5.75 Merchaot's Roofing (Resquared), IC, 14 x 20. 7.50 Meurer Roofing, IC, 14 x 20. 7.75 National, IC, 14 x 29. 5.50 Nava, IC, 29 x 28 New Castle Old Method, IC, 20x 28, 18.00 New Castle Palm, IC, 20x 28. 11.50 New Castle Palm, IC, 20x 28. 11.50 New Castle Palm, IC, 20x 28. 11.50	F
Western Spelter 4601-46	Old Colony, IC, 14 x 20	1 5
Western Speiter	New Castle Palm, IC, 20x28 14.50 Old Cotony, IC, 14 x 20 7.59 Osborn's Old Process, IC, 20 x 28 11.00 Osceola, Old Style, IC, 14 x 20 7.50 IX, 14 x 20 7.50 Pacific, IC, 14 x 20 8.76	13
Stove-Pipe Elbows-See El-	USCEOIN, Old Style, 10, 14 x 20 1.25	
Stove Trucks - See Trucks, Stove,	Pacific, IC, 14 x 20	
Stove,	Coated), IC, I4 x 20 7.25	, .
		_

Phillips' Roofing, IC, 14 x 20	Pontymister Style Grade
Republic, IC, 14 x 20	Worcester O
8cott's Extra Coated (Resquared),     1X.14 x 20     9.50       5tnndard IC, 14 x 20     4.15       Star It', 20 x 28     11.00	Dean Grade
Superior, IC, 14 x 20. 4.50 Taylor's Old Method, IC, 14 x 50. 0.50 Taylor Old Style (Resquared), IC, 14 x 20. 7.80	Abercarne Gr
Phillips' Roofing, IC, 14 x 20	Importe
1X 14 x 20 6.13 Triumph, Old Style, IC, 14 x 20 7.50 U, 8, Monoogahela, 1C, 14 x 20 6.10 U, 8, Monoogahela, 1C, 14 x 20 6.10	Molyn and Ca land Grade.
U. 8. Redipped, IC, 14 x 20. 8.25 Venus, IC, 14 x 20. 4.37% Vigilant, IC, 14 x 20. 5.00 Waido, IC, 14 x 20. 6.00	14 +1 11 14 11 14
Westmoreland, IC, 14 x 20	" " I
Aimond, IC, 14 x 20	Allaway Grad
Century, IC, 14 x 20. 5.00 Climax, IC, 14 x 20. 5.00 "IX, 14 x 20. 6.60	" "
Excelsior, IC, 11 x 20	
American Bright Plates Almond, IC, 14 x 20.  American Bright Plates Almond, IC, 14 x 20.  Brooklyn, IC, 14 x 20.  Century, IC, 14 x 20.  Century, IC, 14 x 20.  Cilmax, IC, 14 x 20.  Excelsion IC, 14 x 20.  Excelsion IC, 11 x 20.  Florence, IC, 14	Steel Coke.—I
" IX, 14 x 20 6.00 Ivy, IC, 20 x 28 12,00 " IX, 29 x 28 15.00	B. V. Grade Importe
Gladys. IC, 14 x 20. 7.40 Hazet, IC, 14 x 20. 5.80 Hazet, IC, 14 x 20. 5.80 Iona. IC, 14 x 20. 5.80 I' IX, 14 x 20. 6.00 I' IX, 14 x 20. 6.00 I' IX, 20 x 28. 12.00 I' IX, 20 x 28. 15.00 Linden, IC, 14 x 20. 5.50 Merchant's Dipped, IC, 14 x 20. 10.00 Merton, IC, 14 x 20. 5.00 Mint, IC, 14 x 20. 5.00 Mint, IC, 14 x 20. 5.00 New Castle Best Palm Charcoal.	Importe IXX, 14x26( IXX, 14x28( IXX, 14x81(
	Tinning Brass an Tubing
IC, 14 x 20 6.50 IX, 14 x 20 8.60 New Castle, Charcoal, IC, 14 x 20 8.25 IX, 14 x 20 7.50	Galvanized Brass Standard List
New Castle, S. Charcoal, IC, 14 x 20, 6,00 IX, 11 x 20, 7,25 New Castle Palm Coke, IC, 14 x 20, 5,75	Trough
New Castle Coke, IC, 14 x 20	Trucks Improved Lo Steel Lock Fr Dalsy Improv
Paima, IC, 14x20 6,00 Pansy, IC, 20 x 28 10.50 IX, 20 x 28 13.00 Phomb IC, 14x20 575	Wrough 14 and nude 14 and under
10, 14 x 20, 7,00     11, 14 x 20, 8,00     12, 14 x 20, 8,00     13, 14 x 20, 8,00     14, 14 x 20, 8,00     15, 14 x 20, 8,00     16, 14 x 20, 8,00     17, 14 x 20, 8,00     18, 14 x 20, 7,50     18, 14 x 20, 7,50     18, 14 x 20, 8,00     18, 12 x 28   13,00     19, 20 x 28   13,00     19, 20 x 28   13,00     18, 14 x 20, 7,25     18, 14 x 20, 7,25     19, 14 x 20, 8,00     19, 14 x 20, 9,00     19, 14 x 20, 9,00     19, 14 x 20, 9,00     19, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10	Boiler Tubes, Casing, list N
Walnut, IC, 14 x 20	Inserted Join 1892 Steel Boiler T Cold Drawn
### Grade, IC, 14 x 20	Zinc- 600 b casks Per b

00 i	Pontymister Old   14 x 20 5.50
75 75 75	Pontymister Old } 14 x 20 5.50 Style Grade, 1C, { 20 x 2811.25
10	Style Grade, IC, { 20 x 2811.25
10	$1X, 14 \times 20, \dots, 0.50$
75 1	90 ₹ 98 19 00
	Womandan Orada 10 11 = 00 1 001/
	Worcester Grade, IC, 14 x 20 1.025
00 .	20 x 28, 9.25
	IV 14 x 90 5.75
50	00 - 00
30 I	20 I 28
15	Dean Orade.—IC, 14 x 20 4.50
00	00 4 68 0 00
-00	AO A 40 5.00
50	1A, 14 X 20 0.75
50 I	20 x 2811.50
- 1	Abercarne Grade IC. 14 x 20 4.25
50 l	90 = 99 9 5 50
20 1	20 x 28 11.50  Dean Grade.—IC, 14 x 20 4.50 20 x 28 9.00  IX, 14 x 20 5.75 20 x 28 11.50  Abercarne Grade.—IC, 14 x 20 4.25  IX, 14 x 20 5.50 IX, 14 x 20 5.50 20 x 28 11.00
75 25	IX, 14 x 20 5.50
25	20 x 28 11.00
25	20 2 201 11.00
~	Incomparison to Dark to be Distant
6	Imported Bright Plates-
88 I	
13	Charcoal.
	Duty: 2.24 * B.
50	Molyn and Cal-
00	moty is and Cal.
10	land Grade. 10, 10 x 14 \$5.3754
101	" " IC. 12 x 12 5.6242
25	land Grade. IO, 10 x 14\$5.3734 IC, 12 x 125.6234 IC, 14 x 205.3744
36	10, 17 1 20 0.3/56
68 I	
	" " IX. 10 x 14 8.75
00	" " IX 19 - 10 7 101/
25	11 11 12 14 14 14 14 14 14 14 14 14 14 14 14 14
25	1X, 14 x 20 0.75
	" IX. 20 x 28 13 50
50	" " TICL 1914 - 17 5 00
. ]	DO, 1276 X 17 5.00
- 1	" DX, 12½ x 17 6.50
25 1	Allaway Grade, IC, 10 x 14 4 8712
ŏŏΙ	11 10 10 10 - 10
	10, 12 x 12 0.15
50	" IU, 14 x 20 4.8734
00	" IC. 20 x 28 9.75
ŏŏ I	11 11 10 - 14 5 77
	1A, 10 x 14 0.70
(0)	" " IX, 12 x 12 8,00
50	" 1X 14 x 20 5 75
	17 00 - 00 11 50
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75	" DX 1212 - 17 . K KA
ຂ້າ	O. 1
00	Coke,
00	Coke, Bteel Coke.—IC. 10x14, 14x20
00 50	Coke, Steel Coke.—IO, 10x14, 14x20 4.50
00 50 80	Coke. Steel Coke.—IO, 10x14, 14x20
00 50 80 00	Coke, Steel Coke.—IO, 10x14, 14x20
00 50 80	Steel Coke.—10, 10x14, 14x20
10 50 80 00	Molyn and Caliand Grades   IO, 10 x 14   \$5.3714
00 50 80 00 00	Coke,   4.80   Coke,   4.80   Coke,   4.80   Coke,   4.80   Coke,   4.80   Coke,   6.75   Coke
00 50 80 00 00 00	Coke,   1.50
00 50 80 00 00	Steel Coke.—IO, 10x14, 11x20
60 80 80 60 60 60 60 60	Coke,   4.50
80 80 80 00 00 50	Coke, 4x20
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00 50 80 00 00 00 00 00 00 00 00 00 00 00 00	B. V. Grade.—IC 10x14, 14x20. 4,35 Imported Boiler Plates. IXX, 14x26. (112 sheets)
00 50 80 00 00 00 00 00 00 00 00 00 00 00 00	B. V. Grade.—IC 10x14, 14x20. 4,35 Imported Boiler Plates. IXX, 14x26. (112 sheets)
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00 580 00 00 00 00 00 00 00 00 00 00 00 00 0	S. V. Grade.—IC 10x14, 14x20

### It Is Reported—

Arkansas.

That E. P. Zachery, dealer in Hardware and Stoves, LACEY, has been succeeded by Sherwood Baker.

Colorado.

That the Hardware store of Frank Mann, BURLINGTON, was burglarized a short time since, the booty secured being valued at over \$300.

Connecticut.

That W. E. Gates Hardware store, at Glastonbury, was recently damaged by fire. Loss, \$6000; insurance,

Florida.

That L. B. Lee & Co. are a new Hardware firm at TAMPA.

Georgia.

That the Fitten-Thompson Hardware Company. ATLANTA, have opened a new store corner Broad and Marietta

### Illinois.

That B. E. and R. L. Hixson have incorporated the Hixson Hardware Company, Quincy. The company have a capital stock of \$12,000 paid in. The following are the officers: R. L. Hixson, president; W. C. Ellis, vice-president, and B. E. Hixson, vice-president and treasurer.

treasurer.
That Wadsworth Hardware Com JACKSONVILLE, successors to Wadsworth & Matheson, whose store was burned out last spring, have com-pleted their new building, which is 20 feet wide by 100 feet long, three stories

That Joseph Seelye contemplates outting in a stock of Hardware at

That J. E. Wightman & Son, CHENOA, whose store was destroyed in the conflagration of July 24, which swept away the entire business portion of the town, have taken possession of their new building.
That George and Byron Darling of

GREEN VALLEY have purchased the Hardware business of C. M. Kingman

of Delevan, Mr. Kingman retiring.
That W. H. Peard, Metamora, will
move his Hardware business to larger quarters about the 1st of January.

That 1. T. Meneley, Rossville, who was burned out July 10 last, has resumed business in his new building which has just been completed.

Indiana.

That Hutching Bros.' Hardware store, at Kokomo, was entered by burglars on the 9th inst. and \$500 worth of property stolen. The thieves have

That L. L. Hodge has sold out his stock of Hardware at MUNCIE.

That Lillard & Hegarty are a new Stove and Tinware firm at MARION.

lowa.

That Ruffcorn, McCortney & Co. of WELDON have purchased the Hard-ware stock of T. A. Kingsbury, Cres-

That burglars entered the Hardware store of Anton Cortes, at Kamear, on the 27th ult., and stole about \$80 worth of Hardware, Cutlery, &c. That Marshall & Sharp of Audubon

have sold their Hardware stock to E. A. Rea of Corydon, and the new firm are now in charge. Mr. Rea is an experienced Hardwareman and conducts stores at Corybon and Chariton. The Audubón store will be managed by J. R. Dent of Corybon and John Parnham, one of the employees of the

former firm. Messrs. Marshall & Sharp are not as yet settled in their plans for the future and for the present are engaged in closing up the affairs of their former business.

That the Hardware store of Nicoll & Son, GOLDFIELD, was broken into by burglars on the 8th inst, and about

\*\*That J. B. Kiel, Hardware merchant, of Montrose, has sold his stock to W. C. Andrews.

Kansas.

That Geo. McVey has lately entered the Hardware field, at Huron.

Kentucky.

That the firm of Lockridge & Wilson, MAYFIELD, have been dissolved. The business will be continued by W. A. Lockridge.

Maryland.

That S. L. Lamberd Company, Baltimore, have been incorporated by S. Luther Lamberd, James J. Ryan, William E. Quinn, William H. Fricker and William C. Odell. The company will deal in Agricultural Implements. The capital stock is \$20,000.

Massachusetts.

That F. P. Carruth, Hardware mer-chant, of Orange, will soon open a

That Sprague & Moore, the new plumbing and Stove firm, at WEST-FIELD, are soon to have a rovel and attractive store front, unlike anything in the town. It will be of aluminum, thus presenting an especially handsome appearance.

Michigan.

That E. F. Colwell & Son, Hardware merchants, LAKE ODESSA, have been succeeded by Fowlin & Kart.

# THE METAL WORKER.

## NEW YORK AND CHICAGO.

### Saturday, December 1, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 Reads Street.
PHILADELPHIA220 South Fourth Street.
BOSTON146 Franklin Street.
PITTSBURGH Room 509 Hamilton Building.
CHICAGO59 Dearborn Street, cor. Randolph.
CINCINNATIRooms 22-24 Pickering Building.
ST. LOUIS Bank of Commerce Building.
CLEVELAND

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Index to Reading Matter......Page 57.

### Colonel Ayer's Tin Plate Report.

The report of Special Treasury Agent Ira Ayer on the production of tin and terne plates in the United States during the quarter ended June 30, 1894, which we print in full in this issue. shows a substantial degree of progress in that industry as compared with the preceding quarters. Despite the fact that trade was still suffering from unwonted depression during the second quarter of this year, the domestic manufacture of tin plates not only maintained its level, but made notable advance. There was an addition of four in the number of active firms reporting, making 40 in all, while the increase in the aggregate output of tin and terne plates for the quarter was nearly 8,000,000 pounds. The actual amount of commercial plates manufactured was 46,466,335 pounds, of which 33,-501,344 pounds, or 72.09 per cent., were made from sheets rolled in the United States, and of this amount 97 per cent. consisted of the lighter class of plates. The details as to the production of American black plates for tinning purposes during the quarter are not less remarkable, showing an output of 37,864,901 pounds, against 30,070,701 pounds in the previous quarter, or nearly 8,000,000 pounds of growth. Of these sheets the proportion that belonged to the class weighing less than 63 pounds per 100 square feet was 85 per cent., as compared with 78 per cent. in the March quarter. The statistical tables presented are particularly interesting and instructive as displaying the really remarkable growth of the industry during the first three full years of its existence.

### A Peaceful Strike Succeeds.

A peculiarly conducted strike has just been settled in a Western city. It appears that the managers of a large foundry attempted to compel their molders to remain in the works until

the regular quitting time on days when they had taken off a heat, the men having been accustomed to leave after that work was done. When the issue was made the men struck. New men were hired to take their places. And here comes the peculiarity of the strike. No attempt at violence was made. Not a man was hurt. Latterly rioting and bloodshed have become such constant accompaniments of a strike that this is very peculiar. Nevertheless, obstructive tactics were employed. The men were not disposed to stand by quietly and see their places filled by others. They managed, in some way, to be able to interview every new hand and convince him that it was wrong for him to take another's place. Perhaps some forcible talk may have passed on such occasions, but if so, it does not appear on the record. At all events, the company finally became very tired of breaking in successive gangs of new men, and the strike ended after a short conference between a committee of the men and some representatives of the company, which was conducted in the most friendly manner, clearing up all misunderstand-The company had been vanquished, and they gracefully surrendered. In the language of a local paper, during the entire strike "the men were acting like gentlemen," and their splendid conduct was an important factor in obtaining a favorable settlement. This is one of the very few strikes this year in which the strikers gained their point, and it is very significant that they accomplished it without resorting to violence.

### Should Manufactories Admit Visitors?

It is a fact well worthy of attention, says The Iron Age, that the treatment accorded visitors to manufacturing establishments by the proprietors is not the same now that it was a few years since. It is not so long ago that we heard much about shop secrets, mysterious and dark apartments where the product was incubated, and were told of special machines of wonderful design which could not be viewed by the vulgar eye because they were the vital part of the business. An atmosphere of mistrust pervaded everything, and the managers of a works closely watched a visitor to make certain that he did not carry away with him the foundation and roof of the building and all things intervening. Once in a long while a place was found where the visitor was welcome, where he was shown the special appliances, and where the methods making the business successful were explained to him in detail. These two classes or divisions differed

widely in the character of their output, no matter what it was. The mysterious man might or might not have devices of exceptional value, but the quality of his product seemed to bear a certain fixed relation to the degree of mystery-the greater the mystery the poorer the product. On the other hand, the man whose establishment was open for inspection almost invariably produced goods of the highest quality in design, material and workmanship. It seemed that he courted a scrutiny of his methods and did not dread a critical examination of his products.

This has now been changed to such an extent that the vast majority of manufacturing concerns are pleased manufacturing concerns are pleased at the advent of a visitor. This change has been aided largely by the technical periodicals and the many technical societies. We understand perfectly that business methods are not the same, and also that while there is the same sharp rivalry there is not the old feeling of district of one's registly or eeling of distrust of one's neighbors. We also appreciate the fact that the army of bright engineers has grown with the times, and that therefore it is with the times, and that therefore it is not so easy now as formerly to control the manufacture of any article by means of special appliances. The im-provement of these special tools would soon take place. But these influences, working unaided, would not have produced the liberal spirit now mani-fected by the manufacturer in the confested by the manufacturer in the conduct of his business. The technical press have, whenever there were meritorious features apparent, presented descriptions of methods and appliances for the benefit of their readers. The shop owner has found that when he permits the publication of a certain device for doing a certain work-perhaps some particular work in his own place—he derives a benefit from the prominence he receives as a designer of ability. The same result is reached of ability. The same result is reached when he describes his shop and business methods, and explains in detail just how he conducts his establishment. if his system is perfect, the reader knows that his product can be relied upon in every respect. When, as now, many do this, there is an interchange of opinion and experience of the greatest value to all concerned. The man who casts his idea as bread upon the water invariably finds that it returns to him increased many fold. The spirit of sociability engendered by the technical societies, the free and open discussions and the custom of explaining minutely valuable methods and apparatus, have done much toward doing away with the exclusiveness heretofore so common.

Manufacturers as a whole will be still more benefited when they adopt the custom of more generally and frequently visiting works in the line they are most interested in. This mutual in-spection will come eventually and will result in improvement in methods and appliances. Even now the leading concerns, particularly the most prominent builders of machine tools, cordially receive the visitor, no matter whether he is a direct competitor or not. being the case in one industry it is not too much to believe that before long door of a factory will be made

without a bar.

# THE LETTER BOX.

# Discoloration from Tin Strainers.

From S. M. E., Rondout, N. Y.—
"A. B. M.," Canton, Ohio, in The Metal Worker of November 17, wishes to know why perforated tin turns coffee blue-black. It is because the tin has been poorly coated or coated with acid. I have had a number of years' experience in hotel and restaurant work and have found that tea and coffee are sensitive, and that a good article caunot be cooked without good, clean utensils to cook it in. For good cooking nothing should be used but the best brands of tiu plate, and strainers should be punched by hand. Copper is preferable, as it can be retinned and kept from getting black.

### Is It a Leak?

From A SUBSCRIBER -I have just completed the gas fitting in a large church building, and while the test to which I have submitted it is satisfactory to the gas company, it fails to meet the approval of one of the church committee, and money for the job is being withheld. The main service pipe is 2 lnches in diameter and a few feet after passing the meter a ‡-inch branch is taken from it extending about 23 feet bafore terminating in several lights. The 2-inch main then continues to the center of the church, making two turns to reach it, and then makes another turn and runs 150 feet under the church. In making this run there are 28 branches taken from it, 14 running each way, and of the branches 12 are 1 inch in diameter and the balance are ‡ inch. All these branches are about 12 feet in length. At the end of the 2-inch plpe the main is reduced to 1½ inches and runs about 20 feet further with eight 4 branches taken from it, each having a length of about 12 feet. After completing the job, using red lead and japan instead of gasfitter's cement, which was objected to, I put a mercury gauge on the job and pumped the column to a hight of 8 inches at 11 o'clock in the morning, and it stood this hight until 6 o'clock in the evening. This test was deemed suffi-clent by the gas company and they signified their willingness to put in a meter. One of the church committee, however, insisted on a 24 hours' test, and atarting the test at 10 o'clock in the morning it ran until the same time the next morning, when the mercury had fallen 2 inches. In order to aid in find. ing the leak I pumped peppermint into the piping and still was unable to find any leak. The pump and gauge are lo-cated on the furthest branch from the meter and the test has been repeated without any leak being found, and it is a question in my mind if a leak exists. but I do not know how to account for the falling of the mercury in the gauge, and will be glad to receive any assistance that the readers of The Metal Worker can give.

Note.—We shall be glad to have our readers give any information which they have gathered in their experience on this aubject. It is quite possible that

the fall in the mercury gauge may be caused by the contraction in the air in the pipes, due to cooling during the night. Recently the temperature at night has been very much lower than that during the day from 11 to 6 o'clock, when the mercury gauge failed to show any change in hight.

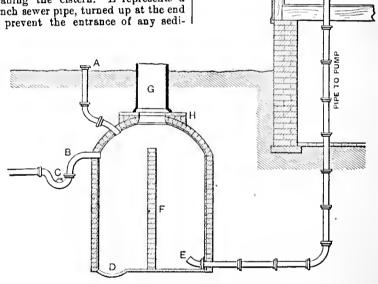
### Jug Shaped Cistern.

From M. L., Warren, Ohio.—I inclose a sketch of a jug shaped cistern which I have built that may be of interest to some of your readers. It is built of brick and cemented, and will hold about 40 barrels. Referring to the sketch, A represents an inlet of 3-inch pipe, B an overflow of 3 inch pipe with a trap at C, and D is a depression in the bottom of the cistern for sedlment. The bottom should grade down to this point in order to make easy work of cleaning the cistern. E represents a 3-inch sewer pipe, turned up at the end to prevent the entrance of any sedi-

tition F is sometimes built of red brick, but I think coarse sandstone better. There are people here who build cisterns made of sand, gravel and cement. The hole is dug and then a form is set in the shape of the inside of the cistern. Cement to a depth of about 3 inches is filled in, and next day the form, which is made in sections, taken out. All pipes are set and the inside given one coat of cement, first covering tight. In a day or two the cover may be opened a little to dry slowly. The water can be let in after a lapse of about three weeks. The cost is about \$1 a barrel.

### Steam in Boiler.

From F. G. N., Columbus, Ga.-I have a 30 gatlon boiler attached to a



Jug Shaped Cistern.

ment. It is cemented into the bottom of the cistern, carried through the wall into the cellar and up to the underside of the floor. All the joints are thoroughly cemented. F represents the filter partition, made of sandstone, and is 5 inches thick. It should be built slightly on a curve, bulging toward D The mouth of the cistern G, 20 Inches in the clear, is made of sewer pipe and is 30 inches high. H is a flagstone, 4 x 4 feet in size and 3 inches thick, with an opening the size of the sewer pipe. It will be observed that the top of the cistern is two feet below grade, and the sewer pipe projects far enough above the grade to prevent any slush or dirt getting in at the top. It is fitted with a neat cover, which should be ventilated by means of small holes, but not of sufficient size to allow toads to enter. This plan admits of using a straight galvanized iron pipe on the pump, thus doing away with all lead pipes. The cistern being set well in the ground keeps the water cool in summer. The filtering paratove for hot water and am annoyed by the boiler making a popping, cracking noise. The circulation seems to be all right, and while there may not be any danger, I would like you to inform me what is likely to cause such a kicking up; also how to prevent it.

Answer. - The noise, in all probabil. ity, is caused by steam passing from the water back to the boller. This may be due to the pipe being partially stopped. owing to incrustation, as the result of a deposit from the mineral matter that may be in the water used. The production of ateam can be prevented by the use of a smaller water back or firing less strong. Another method is to use a vent pipe from the top of the boiler, running up to a point that is higher than the supply. If supplied from a tank, the end of the pipe may be turned down over it so as to discharge any condensation into the tank.

# PLATES,

American Tin Plate Produc-

The special report to the Secretary of the Treasury of Ira Ayer, Special Agent of the Treasury Department, relative to the production of tln and terne plates in the United States during the quarter ended June 30, 1894, which has just been issued, is with the more important exhibits to the following effect:

Office of Special Agent, Treasury | Department, Costom House, New York, November 2,1891.

Sir: I have the honor to report that during the quarter ended June 30, 1894, 40 firms manufactured 46,466,-335 pounds of tin and terne plates proper, against an output of 38,260,411 pounds by 36 firms during the previous quarter.

Of the output for the quarter, 33,501,-344 pounds, or more than 72 per cent., were made from sheets rolled in the United States, and of this amount 32,477,703 pounds, or about 97 per cent., consisted of the class of plates weighing lighter than 63 pounds per 100 aquare feet.

Of the commercial plates manufactured during the quarter, 26,752,996 pounds were coated with tin, and 19,-713 339 pounds were terne coated.

### American Sheet Iron and Steel.

The quantity of American sheet iron and steel made into articles and wares tinned or terne plated was I,807,854 pounds. This makes the aggregate output of tin and terne plate for the quarter, from all sources, 48,274,189 pounds; that of the previous quarter was 40,423,300 pounds.

### Comparison with Net Imports.

The production for the quarter subject to comparison with net importa, under Department's ruling, inclusive of products from American sheet iron and steel tinned or terne plated, was 34,285 557 pounds, as compared with 28,545,162 pounds during the previous quarter.

The production for the fiscal year ended June 30, 1894, subject to such comparison, stated by quarters, was as

follows:	
Quarter ended : September 30, 1893. December 31, 1893. March 31, 1894. June 30, 1894.	28,545,162
Total for fiscal year ended June 30, 1894  By my report dated February 20, 1893, it was shown that one third of the net importa- tions of the class of plates weighing lighter than 63	88,642,045
pounds per 100 square feet, during the fiscal year ended June 30, 1892, was	79,307,939
The difference is	9,334,106

From these figures it is seen that during the fiscal year ended June 30, 1894, American manufacturers produced of tin and terne plates as defined in the law, solely from sheets rolled in the United States, 9,334,106 pounds in excess of the net imports during the fiscal year ended June 30, 1892, subject to

comparison with such domestic production.

#### Changes in List of Manufacturers.

The following companies made their first report of production to the Government, viz :

The Ætna Standard Iron & Steel Company of Bridgeport, Ohio; the Ellwood Tin Plate Company of Ellwood City, Pa., and the Meurer Brothers Company of Brooklyn, N. Y.

The American Tin Plate Company of

Elwood, Ind.; the Canonsburg Iron & Steel Company of Canonsburg, Pa., and the Pittsburgh Tin Plate Works of New Kensington, Pa., were engaged during the quarter enlarging their plant.

The Montpeller Sheet & Tin Plate Company of Montpelier, Ind., com-menced the erection of mills for the manufacture of black plates, and their name appears for the first time in the list of manufacturers.

The Cincinnati Corrugating Company of Piqua, Ohio, and the Laufman Tin Plate Company of Butler Junction, Pa., which had temporarily suspended the manufacture of tin plates, resumed operations and made the usual aworn re-

Twenty rolling mills made sworn returns of production, against 18 that made sworn returns for the quarter preceding.

#### Consumption of American Plates.

Of the 40 firms that made sworn returns of the manufacture of commercial tin and terne plates, 20 used wholly American plates, with an outwholly American plates, with an output of 25,558,798 pounds; 5 used wholly foreign plates, with an output of 4,700,197 pounds; 15 used both American and foreign plates, with an aggregate output of 16,207,340 pounds, of which 7,942,546 pounds were made from American black plates.

Sixteen stamping or other manufacturing companies, that used American sheet iron and steel in the manufacture of articles and wares tinned or terne plated, submitted sworn statements of production, as against fourteen during the previous quarter.

#### Comparative Statements.

a. The following is a comparative attement by quarters of the manufacture of tin and terne plates proper during the fiscal years ended June 30, 1892, 1893 and 1894, respectively:

b. The amount of American sheet iron

	Amount made from				
Period of manufacture.	American Per cent. Foreign black plate. American black plate			Per cent. foreign.	Total.
Quarter ended: September 30, 1891 December 31, 1891 March 31, 1892 June 30, 1892.	Pounds. 785,547 1,200,661 2,132,082 5,178,263	95,00 85,16 66,44 63,14	Pounds, 41,375 209,160 1,077,143 3,022,488	5,00 14.84 33.56 36.56	Pounds, 826,922 1,409,821 3,209,225 8,204,751
Total	9,296,553	68,12	4,350,166	31.88	13,646,719
Quarter ended: September 30, 1892 December 31, 1892 March 31, 1893 June 30, 1893	5,920,082 8,043,449 11,371,968 18 264,225	54-05 40.71 28.46 46.19	5,032,643 11,713,042 (8,194.431 21,279,362	45.95 59.29 61.54 53.81	10,952,725 19,756,491 29,566,399 39,543,587
Total	43,599,724	43.68	56,219,478	F6.32	99,819,202
Quarter ended : September 30, 1893 December 31, 1893 March 31, 1894 June 30, 1894	8,794,027 15,907,669 27,765,162 33,501,344	32.40 58.16 72.57 72.09	18,351,453 11,443,572 10,495,219 12,984,991	67-60 41.84 27.43 27.91	27,145,480 27,851,241 38,260 411 46,496,885
Total	85,968,902	61.74	53,255,265	38.20	189,223 467

The names of the Alan Wood Company of Philadelphia, Pa., and the Western Tin Plate Company of Belle-Western Tin Plate Company ville, Ill., are omitted from the revised list (Exhibit 3).

### Black Plate Production.

The production of black plates in the United States during the quarter was 37,864,901 pounds, and of this amount 32,449,205 pounds, or more than 85 per cent., belonged to the class welghing lighter than 63 pounds per 100 square feet. The production of the previous quarter was 30,070,701 pounds, of which 23,514,881 pounds, or more than 78 per cent., were of the lighter

The production of American black of the class weighing lighter than 63 pounds per 100 square feet was 8,934,324 pounds in excess of that of any previous quarter.

and steel made into articles and wares, tinned or terne plated, during the same period was as follows:

Pounds

Quarter ended

Ouarter ended;	rounds.
September 30, 1891	. 1,129,217
December 31, 1891	
March 31, 1892	
June 30, 1892	
Total	5,620,867
Quarter ended:	
September 30, 1892	. 1,276,932
December 31, 1892	
March 31, 1893	
June 30, 1893	
Total	. 8,802,681
Quarter ended:	
September 30, 1893	. 1,052,813
December 31, 1893	
March 31, 1894	
June 30, 1894	
Total	6 968 963

c. The production by quarters of fine sheet steel or black plates in the United States, from July 1, 1891, to June 30, 1894, was as follows:

Period of manufacture.	Lighter then 63 pounds jer 100 s q m m refreet.	63 pounds per 160 square Feet and heavier.	Total.
Quarter ended:	Pounds.	Pounds.	Pounds.
Sept. 30, 1891	489,107	3,016,006	3,505,113
Dec. 31, 1891	679,584	4,593,416	5,273,000
Mar. 31, 1892	1,696,595	4,909,370	6,605,965
June 30, 1892	4,761,641	6,(67,537	10,829,178
Total	7,626,927	18,586,329	26,213,256
Quarter ended :			
Sept. 30, 1892	4,821,180	4,202,277	9,023,457
Dec. 31, 1892	8,575,541	5,444,675	14,020,216
Mar. 31, 1893	13,287,567	6,361,848	
June 30, 1893	14,208,192	6,780,321	20,988,513
Total	40,892,420	22,789,121	63,681,541
Quarter ended :		0.000.000	11 655 000
Sept. 30, 1893	8,147,092	3,208,276	11,555,368
Dec 31, 1893	17,197,661	2,482,249	19,679,910
Mar. 31, 1894	23,514,881	6,555,820	30,070,701
June 80, 1894	32,449,2,5	5,415,696	37,864,901
Total	81,303,842	17,662,038	98,970,880

### Imports and Exports.

The quantity of tin plates and terne plates imported and entered for immediate consumption, and of such as were imported on and after July 1, 1891, and were withdrawn from warehouse for consumption during the quarter ended June 30, 1894, was as shown below:

Imports.	Lighter than 83 pounds per 160 s q n a r c feet.	63 pounds per 100 square feet and beavier.	Total.
Tin plates Terne plates	Pounds. 168,739,652 9,004,216	Pounds. 1,765,417 46,803	Pounds. 110,505,069 9,051,019
Total	117,743,868	1,812,220	119,656,688

The quantity of tin plates and terme plates on which duties had been paid and which were used in the manufacture of articles exported with benefit of drawback during the quarter, was:

Exports	Lighter than Expounds per I'm s q uare feet,	63 pounds per 100 square feet and heavier	Total.
Tin plates, Terne plates,	36,402,005	Pounds. 99,590	Pounds, 36,501,595 54,856
Total	36,456,861	99,190	36,556,451

#### Exhibits.

Appended are the following exhibits:

Appended are the following exhibits:
Exhibit 1. Summary of production of tin and terne plates proper during the fiscal years ended June 30, 1892, 1893 and 1894, respectively.
Exhibit 2. Statement, by quarters, of fine sheet steel or black plates produced in the United States from July 1, 1891, to June 30, 1894. The figures throughout are taken from the sworn returns of manufacturers.

returns of manufacturers.
Exhibit 3. Revised list of firms or companies engaged in tin and terne plate manufactures June 30, 1894.

Exhibit 4. List of stamping or other manufacturing companies that used American sheet iron or steel in the manufacture of articles and wares tinned or terne plated during the quarter ended June 30, 1894.

Respectfully aubmitted,

IRA AVER, Special Agent.

Hon. John G. Carlisle, Secretary of the Treasury. Washington, D. C. Exhibit 2.-Statement, by Quarters, of Fine Sheet Steel or Black Plates Produced in the United States from July 1 1891, to June 30, 1894.

Period.	Lighter than 63 pounds per 10% square feet.	63 pounds per 100 square feet und beavier.	Total.
Quarter ended: Sept. 30, 1891 Dec. 31, 1891 Mar. 31, 1892 Jule 30, 1892	Pounds, 489,107 679,584 1,696,59 4,761,641	Pounds 3,016,006 4,593,416 4,909,370 6,067,537	Pounds, 3,505,113 5,273,000 6,605,965 10,829,178
Total	7,626,927	18,586,32×	26,213,216
Quarter euded: Sept, 33, 1892 Dec. 31, 1892 Mar. 31, 1893. June 30, 1893	4,821,180 8,575,541 13,287,507 14,208,192	4.202,277 5,444,675 6,361,848 6,780,321	9,023,457 14,020,216 19,649,385 20,988,513
Total	40,892,420	22,789,121	63,681,541
Quarter ended; Sept. 30, 1843 Dec. 31, 1893 Mar. 31, 1894 Juue 30, 1894	8,147,092 17,197,664 23,514,881 32,449,205	2,482,246 6,555,82	11,355,368 19,679,910 30,070,701 37,864.901
Total	81,308,842	17,662,038	98,970,880

Exhibit 3. Revised List of Firms or Companies Engaged in Tin or Terne Plate Manufactures, June 30, 1894.

[a, Made sworn return; s, manufacture suspended; b, building; n, new company; \*, making or preparing to make black plates; e, eplarging plant; +, make only black plates; ||, made no return.|

Note.—In the following list are included the names of such firms or companies only as were manufacturing, or had begun act-ual building operations, prior to June 30, 1894.

A. A. Thomson & Co. a, New York, N.Y.
 Ætna Standard Iron & Steel Company \* a,
 Bridgeport, Ohio.

Exhibit I.-Summary of Production for the Fiscal Years 1892, 1893 and 1894.

	Г	in plate	8.	Terne plates.			Tin and terne plates.	Amount made from—		
Period from—	Lighter than 63 pounds per 100 eq. feet.	63 pounds per 100 sq. fect and beavier.	Total.	Lighter than 63 pounds per 100 sq. feet.	63 pounds per 100 sq. feet and heavier.	Total.	Aggregate produc- tion.	American black plates.	Foreign black plates.	Total.
First fiscal year after law became operative July 1, 1891, to September 30, 1891	Lbs. net 134,869 181,501 1,018,698 2,796,941	17,620 34,410 80,958	215,911 1,099,656		231.881 147,031 201,700	674,433 1,193,910 2,109,569	Lbs. act 826,922 1,469,821 3,209,225 8,200,751	785,547 1,200,661	209,160 1,077,143	826,922 1,409,821
Totals	4,132,009	407,581	4,539,590	8,192,536	914,593	9,107,129	13,646,719	9,296,553	4,350,166	13,616,719
Second fiscal year after law became operative. July 1, 1862, to September 30, 1892 October 1, 1892, to December 31, 1892 January 1, 1893, to March 31, 1893 April 1, 1893, to June 30, 1863	14,333,875	864,305 910,699	3,611,367 6,138,739 15,244,574 20,748,427	12,684,646 13,803,461	933,106 518,364	7,341,358 13,617,752 14,821,825 18,795,160	10,952,725 19,756,491 29,566,399 39,543,£87	8,043,449 11,371,9(8	5,032,643 11,743,042 18,194,431 21,279,362	19,756,491 29,566,399
Totals	42,370,681	3,372,426	45,743,107	51,479,806	2,596,289	54,076,095	99,819,202	43,599,724	56,219,478	99,819,202
Third fiscal year after law became operative. July 1, 1893, to September 30, 1893 October 1, 1893, to December 31, 1893. January 1, 1894, to March 31, 1894. April 1, 1894, to June 30, 1894.	11,048,471 21,815,641	633,574 1,497,920	14,682,045 26,313,561	12,252,823	416,373 460 103	= 13,284,317 12,669,196 11,946,850 19,713,339		15,907,669 27,765,162	18,351,458 11,448,672 10,495,249 12,964,991	27,351,241 88,260,411
Totals	77,420,825	4,188,940	81,669,765	55,593,417	2,020,285	57,613,702	139,223,467	85,968,202	53,255,£65	139,223,467

Aliquippa Tin Plate Company s, Aliquippa,

American Stamping Company a, Brooklyn, E. D., N. Y.
American I'nn Plate Company \* a e, El-American I'm Plate Company \* a e, El-wood, Ind.
American Tin Plate Machine & Mfg. Company a, Linfield, Pa.
American Tin & Terne Plate Company a, Philadelphia, Pa.
Apollo Iron & Steel Company \* a, Apollo, Pa.

Baltimore Iron, Steel & Tin Plate Com-pany \* a, Baltimore, Md. Black Diamond Tin Plate Works a, Phila-

delphia, Pa.
Blairsville Rolling Mill & Tin Plate Company \*a, Blairsville, Pa.
Britton Rolling Mill Company \*b, Cleveland, Ohio.
Burn Stamping & Mfg. Company s, Chicago III

cago, Ill.
Canonsburg Iron & Steel Company \* a c, Canonsburg, Pa. Chicago Stamping Company a, Chicago,

Chicago Tin Plate Manufacturing Company II, Chicago, Ill.
Cincinnati Corrugating Company a, Piqua,

Cleveland Tin Plate Company a, Cleveland,

Ohio.
Columbia Tin Plate Company s, Piqua,

Cumberland Steel & Tin Plate Company \* a \*, Cumberland, Md.

Duquesne Tin Plate Works a, Pittsburgh,

Pa. East River Lead Company a, New York, N. Y. Ellwood Tin Plate Company \* a +, Ellwood

City, Pa.

Falcon Tin Plate & Sheet Company \* a \*,
Ntles, Ohio.

George W. Jacques a, New York, N. Y.

Griffiths & Cadwallader a, Pittsburgh, Pa.

Gummey, Spering & Co. a, Philadelphia,
Pa.

Indiana Tin Plate Mfg. Company s, At-

Indiana Tin Plate Mfg. Company s, Atlanta. Ind.
James B. Scott & Co. ||. Pittsburgh, Pa.
Jennings Bros. & Co., Limited \* a †, Pittsburgh, Pa.
John Hamilton a, Pittsburgh, Pa.
Kirkpatrick & Co., Limited \* a †, Pittsburgh, Pa.
Lalance & Grosjean Mfg. Company \*, a †, New York, N. Y.
Laufman Tin Plate Company a, Butler Junction, Pa.
Marshall Brothers & Co. \* a, Philadelphia, Pa.

Matthai, Ingram & Co. a, Baltimore, Md. McKinley Tin Plate Company I, Wilkins-McKinley burg, Pa.

Merchant & Co. a, Philadelphia, Pa. Merchant & Co. a, Philadelphia, Pa.
Meurer Bros. Company a, Brooklyn, N. Y.
Montpelier Sheet & Tin Plate Company\*
b n, Montpelier, Ind.
Morewood Company\* a. Gas City, Ind.
Morewood Tm Plate Mfg. Company s,
Elizabethport, N. J.
New Castle Steel & Tin Plate Company\* a,
New Castle, Pa.
N. & G. Taylor Company a, Philadelphia,
Pa.

Norristown Tin Plate Company a, Norris-

town, Pa.

Norton Bros.\* a, Chicago, Ill.

Philadelphia Iron & Tin Plate Works \* a,

Philadelphia, Pa.

Philadelphia Tin Plate Company a, Phila-

delphia, Pa.

Phillips Tin Plate Company a, Philadelphia, Pa.

phia, Pa. P. H. Laufman & Co., Limited,\* a, Apollo, Pittsburgh Tin Plate Works \* a e, New

Kensington, Pa.
Record Mfg. Company a, Conneant, Ohio.
Saunders, Fielding & Bond 1, New York,

N. Y.
Somerton Tin Plate Works, \* a, Brooklyn,
N. Y.
St. Lonis Stamping Company \* a, St. Lonis,
Mo.
United States Iron & Tin Plate Mfg. Company \* a, Demmler, Pa.
Wallace, Banfield & Co., Limited \* a, Irondale Ohio.

dale, Ohio.

Total number of companies June 30, 1894,

Number that made sworn returns of manufacture, quarter ended June 30, 1894, 46.
Number of companies manufacture suspended, quarter ended June 30, 1894, 5.
Number of companies building, quarter ended June 30, 1894, 2.
Number of companies enlarging plant, quarter ended June 30, 1894, 3.
Number of companies making or preparing Number that made sworn returns of manu-

to make black plates, quarter ended June 30, 1894, 25.

Number of companies that made sworm returns of black plate production, quarter ended June 50, 1894, 20.

Number of new companies, quarter ended June 30, 1894, 1.

June 50, 1894, I. Number made no returns, quarter ended June 30, 1894, 4. Number of companies making only black plates, quarter ended June 30, 1894, 6.

Exhibit 4.—List of Stamping or other Manufacturing Companies that use American Sheet Iron or Steel in the Production of Articles and Wares Tinned or Terne Plated.

Note -The following list embraces only such firms or companies as made sworn returns of production to the Government for the quarter ended June 20, 1894:

American Stamping Company, Brooklyn, E.D., N. Y. Avery Stamping Company, Cleveland,

Onio.

Bellaire Stamping Company, Harvey, Ill.
Buhl Stamping Company, Detroit, Mich.
Central Stamping Company, New York,

Chicago Stamping Company, Chicago, Ill.
Cleveland Stamping & Tool Company,
Cleveland, Ohio.
Dover Stamping Company, Cambridgeport, Mass.

port, Mass.
Eberhard Mfg. Company, Cleveland, Ohio.
G. I. Mix & Co., Yalesville, Conn.
Iron Clad Mfg. Company, Brooklyn, N. Y.
Lalance & Grosjean Mfg. Company, New
York, N. Y.
North & Judd Mfg. Company, New
Britain, Conn.
O. B. North & Co., New Haven, Conn.
R. L. Wallace & Sons Mfg. Company,
Wallingsford, Conn.
Sidney Shepard & Co., Buffalo, N. Y.

### The Welsh Tin Plate Troubles.

According to a special cable dispatch of November 26 from Llanelly, Wales, to the Pittsburgh Dispatch, a crisis induced by the recent action of the manufacturers in demanding a reduction of 25 per cent. In the wage scale over-shadows the tin plate trade of South Wales. The Welsh tin platers are said to be just now in a very serious and perplexing position so far as unionism is concerned. The officials of the Tin Platers' Union are the only substantial remnants of a well-organized and powerful society of workmen. Their funds have lapsed into a poverty-stricken sum, and the contributions from the different branches in the various large works have drifted from the general fund into other channels. Consequently there are no funds at command, neither is there a combination among the men, so desirable to them when relations between employers and employed are strained on the questions of wages or the conditions of labor.

The Welsh tin plate makers, in order to meet the competition of the domestic works in the United States, have demanded a 25 per cent. reduction in the cost of labor at their works. The initiative was taken at the Llanelly works of Morewood & Co., where the workmen have been given two weeks to consider the proposition. Messrs. Morewood's course has been, or is likely to be, imitated by all the other employers in South Wales, and the latest advices disclose the fact that about 60,000 Welshmen, employed in 70 odd works, have been given to understand that whatever terms are agreed upon in any of the Llanelly are agreed upon in any of the Lianelly establishments will be put late operation all along the line. The workmen, with a practically collapsed union, are in no condition to offer any combined or sustained resistance. Some have already agreed to the terms, and as at the Burry worke, Llanelly, are now working, after an idleness of nearly

three years, at a reduction of 25 per

At a meeting recently held of men in the various branches of the trade it was decided to ask the employers to meet a deputation of workmen to discuss the situation. A joint conference was accordingly held at Llanelly on November 15, which was attended by all the principal manufacturers and two delegates from each of the works. The proceedlags were private and but little has transpired as to the conclusions arrived at; but it is understood that nothing definite came of the conference, and that the question is to be again re-ferred to a general meeting of the trade to be held at an early date. At the next meeting it is thought

something taugible will be produced and a definite reply strived at, and each delegate will be authorized to meet the masters again at a later date. The latter have expressed the determination of elosing their doors unless a definite answer is given to their demands. rumor has gained currency that the men will remain firm and refuse any overtures on the wage-rate question. Another report says they are agreeable to a 10 per cent. cut, and that a better offer even than this will be submitted. This seems certain—that the masters will enforce their demands, and a lockout will be the only alternative.

### Wages Agreement in Court.

The attempt of the United States Iron & Tin Plate Mfg. Company, Demmler, Pa., to operate their tin plate plant with non-union men, and which gives good promise of being successful, has resulted in a move being made by the Amalgamated Association, the outcome of which will be awaited with much interest by employer and employee The move in question was the allke. filing of a bill in equity in the courts at Pittsburgh, on Saturday, the 24th ult, by the attorney of the Amslgamated Association, asking the court to grant a decree restraining the United States Iron & Tin Plate Mfg. Com-pany and the officers and agents thereof from operating their tin and black plate mills at wages less than the schedule of prices agreed upon for the work performed by rollers, heaters, doublers and shearmen. The bill sets forth that on July 6 a committee from each association agreed upon a scale of wages to be paid by the firms composing the Tinued Plate Manufacturers' Association to their employees engaged as rollers, heaters, doublers and shearmen for the year ending June 30, 1895.

The case will be heard by the court on Saturday, December 1. The filling of this suit has excited considerable speculation as to the line of defense that will be offered by the defendants. By many it is believed that the fact that the Manufacturers' Association and the Amalgamated Association are not incorporated bodies will cause the suit to be dismissed by the courts. In this connection it is pertinent to state that in addition to the agreement entered into on July 6, a resolution was adopted in conference to the effect that should a reduction in the tariff on tin and terne plate be made and a reduction in the selling price of same follow, then another conference should be held be-tween the Manufacturers' Association and the Amalgamated Association in order to determine what reductions in the wage scale had been made necessary. As is well known, a conference was held in Pittsburgh shortly after the passage of the tariff bill, at which the

manufacturers proposed a reduction of 30 per cent. in rollers' wages, 25 per cent. to heaters and 20 per cent. to shearmen and doublers. A vote was taken on this by the different lodges of the Amalgamated Association, and the vote was almost unanimous against accepting any reduction whatever. was followed by the complete shut down of the tin plate plants operated by members of the Manufacturers' Association, with the exception of some six or seven, most of which are located in the gas fields in Indiana. Should this suit in equity be allowed to pro ceed to a full hearing, the question will doubtless be determined whether wage agreements are legally binding on the parties making them or not. decision coming from a court would doubtless be of value to employer and employee.

### Tin Pack Shear.

The accompanying illustration is of a new tin pack and trimming shear, built by the Wais & Roos Punch and Shear Company of Cincinnati, Ohio, for the



THE LARGEST CARGO of the plates sent out from Swansea, Wales, for a long period was shipped last week on the steamship "Minnesota" for Philadelphia. It amounted to 3300 tons.

THE AVON VALE TIN PLATE WORKS, Aberavon, Wales, have lately resumed operations after a long shut down, giving employment to about 300 persons.

THE DECREASE in the value of tin and terne plates shipped from Great Britain to the United States in the first ten mouths of 1894, according to the British Board of Trade returns, was \$3,665,000. The falling off in exports to all countries in the same period was \$4,025,000.

THE LIVERPOOL CORRESPONDENT OF the Iron and Steel Trades Journal of London, in a recent issue, refers to the present position of the Welsh the plate trade as being most perplexing. Only a small business is being done and the trade is threatened with opposition on every side, just when prices are downto zero and little or no margin of profit is

Tin Pack Shear.

especial purpose of cutting packs and trimming sheets in tin mills. The machine is built with or without engine and with or without gearing, the cut showing it with both engine and gearing. It is supplied with front, back and side gauges. The standard length of blades is 40 inches, but it may be made wider if so desired. It is constructed with the view of compactness, strength and rapid operation, which features have recommended it to many of the large mills of the country. The manufacturers are at present making eight of them for one plant, and they have also received orders for a new combined shear and doubler, sheet doublers, leveling rolls, &c.

W. C. Brown, 45 La Salle street, Chicago, has been appointed agent for the sale of Tin and Terre Plates manufactured by the Old Dominion Iron & Nail Works Company of Richmond, Va. They have just completed the first Tin Plate plant in the South.

left. He comments on the fact that at the time when fortunes were being made in the trade, competition was never dreamt of. Five years ago there was hardly a tin plate made outside of Wales, and now they are being made in America, Spain, Italy, Germany, France and Austria. The only way he seems to see out of this difficulty is that the workmen should meet the manufacturers half way in the matter of wage reduction. This course he recommends as the sole means of staving off, at any rate for a time, worse evils, for it will, he observes, mean a tough fight for both masters and men to keep the trade at all. "This cau only be done by kceping prices so low as to starve out competitors."

W. H. EDWARDS, proprietor of the Liantrissent and the Maesteg Tin Plate Works and one of the best known tin plate manufacturers in South Wales, has been elected Mayor of the borough of Swanses. Mr. Edwards is well known to the trade in the United States,

having spent some time in this country lately and having started the tin plate works at Norristown, near Philadelphia. He is a son of Daniel Edwards, proprietor of the Dyffryn Tin Plate Works, and is known as one of the brightest and most successful men in the business.

THE DIRECTORS of the Globe Tin Plate Company, recently organized, with a capital stock of \$150,000, have, it is announced, selected the site for their tin plate plant, at Newcastle, Ind. The mill will be on a large scale, giving employment to about 400 persons, and it is expected to be in operation in about six months' time. A large proportion of the stock of the new company is said to have been subscribed by local business men of standing in Newcastle.

AT A MEETING last week of the directors of the new National Tin Plate Works, building at Anderson, Ind., an agreement was exacted from the contractors in charge of the construction to have the buildings ready for occupancy by January 1, and in a condition for operation by January 10.

When the tin plate mills of the St. Louis Stamping Company, St. Louis, Mo., atarted up again last week after nearly two months' idleness, about one-fifth of the old force of 800 men appeared for work and more are atated to have since joined. Two of the nine mills are reported to be at work and others will shortly be started up. The works have been thoroughly overhauled during the shut down and a number of improvements introduced.

ENGLISH ADVICES intimate that the recent floods in Wales materially interfered with the tin plate trade. In the Swansea Valley the river Tawe overflowed its banks and the tin plate works at Morriston were inundated, putting a stop to all operations.

IN THE Monmouthshire (England) Valleys the tin plate workers have consented to make a concession of ten boxes per 100 to December 31, in order to keep the mills going.

THE LA BELLE IRON WORKS, Wheeling, W. Va., manufacturers of muck bars and steel cut nails, have decided to engage in the manufacture of tin and terne plate A force of men has already been put to work tearing down some old puddling furnaces to make room for the new buildings. The contracts for the equipment of the plant are expected to be placed this week. It will be a four-mill plant and have a capacity of between 500 and 600 boxes of tin plate per day. Work will be commenced at once, and it is hoped to have the plant ready for operation by April 1, 1895.

INCORPORATION PAPERS have been accured for the Great Western Tin Plate Company of Chicago. The authorized capital stock is \$300,000. The incorporators are Charles H. Wilcox, John D. Lewis and Elisha C. Ware. Mr. Wilcox is known to the iron trade through his connection with the management of the Calumet Iron & Steel Company of Chicago. Mr. Lewis is a practical tin plate maker who has been managing the Chicago Tin Plate Mfg. Company. Their plans are not yet in shape to make public, but they propose to make black plates as well as tin them.

F. E. Briods, Deering Centre, Malne, is putting a power plant in his tinware factory, and will increase his line of manufactures by the addition of several novelties, and will also make razor strops.

## HEATING D PLUMBING.

### NEW WORK AND CONTRACTS.

J. J. Hogan of 972 State street, New Haven, Conn., has the contract for plumbing, gas fitting and tinning of Edward Carney's new house on Linden street and Michael Kane's two-family house on Nash street, besides several overhauling joba.

THE BAKER & SMITH COMPANY, 193-197 Van Buren street, Chicago, have the contract for steam heating in the residence of A. S. Stevens, La Salle avenue.

TAYLOR & TAYLOR, Meriden, Conn., have the contract for putting new water closets in the Palace Block.

A. C. HICKEY, 69 South Clinton street, Chicago, is overhauling the plumbing and putting in ten shower baths for the Illinois Charitable Eye and Ear Infirmary, West Adams and Peoria

W. S. Lines will build three \$6000 houses at Hartford, Conn., that will have modern plumbing.

THE THEO. JACOBS COMPANY, 72-74 Market street, Chicago, are to install a steam heating plant in the Palmer House, Jolief, Ill.

BARNARD & BAILEY, Milburn, N. J., have the contract for the plumbing in a new school building in their town. The Fuller & Warren system of heating and ventilation will be used.

B. D. DUGGAN, 207-209 Lake street, Chicago, is to install a No. 424 Richmond steam heater in the residence of J. T. Halls, Oak Park, Ill.

A. I. Jacobs, Hartford, Conn., will erect a \$6500 house that will have a hot water heating system.

Neil Bros., 495 Forty-third street, Chicago, are to do the plumbing, gas fitting and sewerage in the four houses of William C. Hill, Oglesby avenue and Sixty-first street.

Bonner & Co., Bridgeport, Conn., are using an Allen steam boiler in the West End Church and are doing the plumbing in the residence of Harry Nettleton and two houses for Frank Villante.

R. H. Lear, 156 Forty-third atreet, Chicago, has the contract for the plumbing, gas fitting and sewerage in the 25 flat building of W. G. Press, Wabash avenue and Forty-fourth street, and is finishing the plumbing in the residence of Gco. P. Barton, Lexington avenue and Fifty third street.

THE IDAHO PLUMBING & HEATING COMPANY of Boise, Idaho, are installing a steam heating plant and system of plumbing, using a Rider engine for supplying water, in the Idaho Soldiers' Home now being built near their city.

John Keahns, Bridgeport, Conn., is installing the heating plant and do-ing the plumbing in a club house at Smithtown, L. I., and is doing a fine job of plumbing in the cottage of Edward Thompson, at Northport, L. I. lie is also doing the plumbing in the residence of W. H. Fox, at Fairfield, Conn., and also installing the ateam heating plant, using the old-fashioned Gold sheet iron radiators.

THE FOSKETT & BISHOP COMPANY,

York, Dorr & Angel of New York and W. T. & M. S. Brown, Stamford, Con., are also using their new system heating boiler in plants that they are installing.

C. A. Ames, Bridgeport, Conn., installed a Perfect hot water boiler in the residence of J. S. Marshall and is doing the plumbing in a six-family tenement house. Ite is also doing the plumbing in a \$20,000 residence for J. S. Nash. He is using Florida steam heaters in the residences of W. D. Bishop, Jr., and E. P. Hinks and in the Taylor Library Building, at Milford, Conn.

THE THATCHER FURNACE COMPANY, New York, are installing four of their Thatcher steam heaters in the church and school, priests' residence and sisters' house of St. Ann's Church, at Nyack, N. Y.

H. B. MIDDLEBROOK, Bridgeport, Conn., is using two Sunray hot water boilers and 5000 lines feet of piping in a chicken brooder for E. A. Hawley, at Fairfield, Conn. He is also erecting a Domestic steam engine, to be used in connection with a Worthington duplex pump, for pumping water into a 5000gallon tank for supplying water as required throughout the chicken farm. The engine will also be used to cut feed for the chickens. Mr. Middlebrook is also doing the plumbing and heating in the residence of Mary Treat, and will use two porcelain lined baths, two Triple Jet siphon closets and two handsome lavatories. The Great American hot air furnace will be used for the heating of twelve rooms in this house, the cold air duct having a capacity of 600 square inches and feeding 13 pipes. He is also installing a hydraulic ram for James Lee, at Hawleyville, which will send the water 900 feet to supply a house, dairy and barn.

THE NEW PLUMBING FIRM of Lindley & Meredith, Bennington. Vt., have the contract for putting a hot water system into John Coleman's house, using a Volunteer boiler.

GAYLORD & EITAPENCE, Binghamton, N. Y., have the contract for furnishing and erecting the steam heating apparatus in the new Miners' Bank Building, Pittston, Pa.

THE BOARD OF PLUMBERS, Hudson, N. Y., accepted the plan for plumbing the Columbia County Court House, presented by William H. Hudson.

WOOLLEY BROS., Jamaica, N. Y., have been awarded the contract for plumbing and tinning a hotel at Sag Harbor.

### The Blackwell's Island Bridge.

In the market reports of The Iron Age reference was made last week to the fact that bids have been put in for the steel work for the Blackwell's Island bridge. The contract will be for the largest quantity of bridge material yet placed in this country. As we stated, it will take a few weeks before the bids received can be investigated and before the work is given out. The structure is to be built for the Long Island Railroad Company. The first coffer dam was sunk at Blackwell's Island a month ago, on the west side of the Island, and is now ready for pumping operations and the building of the first pler. The second coffer dam, on the east side of Blackweli's Island, has been started. New Haven, Conn., are installing one of their new steam heating boilers in the residence of S. B. Steinman, at New Blackwell's Island, has been started. The other two coffer dams, which are to be used on the Long Island end and

the New York end of the bridge, will be ready in about a month.

The whole bridge is to be constructed on the cantilever principle, with three spans-one span from Long island to Blackwell's, one across the latter island and a third from Blackwell's to the New York shore. The piers will be built of massive blocks of red granite. The contract for building them has already been awarded. The main piers, on Blackwell's Island and cach shore, will contain altogether 810,000 cubic feet of stone; the two anchor piers, 216,000 cubic feet. The total weight The total weight of all six will be 86,210 tons. There will be a span over each channel 846 feet long, and a continuous girder over Blackwell's Island, 613 feet long. four-track road will occupy the center of the bridge, with carriage ways and sidewalks on each side.

The total weight of steel in the bridge will be over 53,000,000 pounds. The weight of steel in the viaduct approaches at the New York and Long Island ends will amount to 25,000,000 pounds. The distance required by law between the two spans and high water has been reduced by an act of Congress from 150 feet to 135, as in the case of the Brooklyn Bridge. The total hight from high water to the top of the cantllever will be 255 feet.

The new bridge will be the heaviest long span bridge in the United States; and the weight it is calculated to carry makes it the heaviest bridge structure per foot in the world, not excepting the famous Forth bridge near Edinburgh. It is to be what is called "pin con-nected," and to give some idea of the magnitude of the structure from details it may be mentioned that each "pin" will be 18 inches in diameter and weigh 31 tons.

Charles M. Jacobs, consulting engineer of the Long Island Railroad, who put the gas tunnel under the East River and Blackwell's Island, says:

I have been engaged on this work for Austin Corbin and those interested with him in the Long Island Railroad for some time. For the last 12 months I have been working out the details. The company are now able to call for bids from the largest bridge builders, and propositions from all of them are now in our hands. The terminal station in New York will cover an entire block between Second and Third avenues. There are to be 12 tracks, 25 feet above the elevated roads, and connecting with both the Second avenue and Third avenue lines. Underneath will be a large market building, with elevated galleries, 75 feet wide. A sub-basement will provide a place for cold atorage for produce brought in by the rail-ways and left over unsold. The exact ways and left over unsold. location for the station has not been decided on, but as, under an act of Congress and the State laws, we have power to condemn all lands we may require, we see no difficulty in our way. Finally, men, money and brairs have been secured for the enterprise, and the summer season of 1897 will see communication between Long Island and New York by one of the finest pieces of engineering in a bridge structure and terminals in the world.

It is announced that the Russian Government has decided on the establishment of two large locomotive works, one at Warsaw and one at Kharkoff, to construct the locomotives required for the Russian State railways, in order that they may be independent in this respect of Germany and Austria.

# PLUMBING and GAS FITTING.

### The E. S. Wheeler & Co.

A walk through the warehouse of The E. S. Wheeler & Co., jobbers of tinners' and plumbers' supplies, New Ilaven, Conn., reveals to the visitor how peculiarly well fitted they are for handling this business economically and promptly. They seem to have a very large line of standard goods in tin plates and in about everything which comes under the head of tinners supplies, and in Iron and lead pipe, and a similar assortment of the materials which are bought by careful plumbers. They apparently do not deal in private marks of earthen ware and in similar specialties, but confine their business to handling standard goods for small commissions and for shipment both from warehouse and from the works where the goods are produced. Into their warehouse there runs a track of the New Haven Railroad system, and this connects directly with the Lehigh Valley and Pennsylvania systems of the South and West, so that not only in New England, but in all the country east of the Mississippi River, they solicit business, and would appear to be in excellent position to handle it advantageously. They also do a large commission business in tin plates, quite apart from their jobbing business, and are American selling agents for Gilbertson's Old Method roofing tln, acting as the tunnel through which the maker distributes his product in this country.

### Sanitary Earthen Ware.

BY OBSERVER

The excellence of vitreous earthen ware is so manifest that it cannot suffer when the good features of glazed ware are brought to notice. The only objection that has been heard so far to vitreous ware is in the color-an absolutely pure white not being successfully pro-duced with uniformity. In setting forth the merits of the vitreous ware no mercy has been shown the superior glazed earthen ware of the recent past, and all of the defects that the early productions developed are spoken of as if existing in their worst form to-day. As a result of the general talk among plumbers on this matter, a traveler through a section where the hotels are all fitted with sanitary earthen ware made close inspection of the closets and urinals for the supposed universal craze and wet rot so freely spoken of. In the closets none of the crazing was found that could be called serious, and in only a few eases where the pattern showed clearly that they had been manufactured in the early days of the in-Those of late patterns of the best grades showed none of the effects of wear and time. It is said that urinals are subjected to a more severe test, as the water in a closet seldom reaches a temperature much above that in the room, and the water in the flish tank ordinarily has become somewhat raised in temperature so that there is not so great a difference as is experienced with urinals. Often the flushing water for urinals is raised very little above the

supply temperature, and in use a much higher temperature is imparted to the glazed surface, so that the cause for crazing is much greater owing to the sudden and wider variation in temperature. An equally careful acrutiny, however, failed to find even the urinals of late production in a crazed condition, and those that were showed from their design that they had been made long since.

# Plumbing Showrooms. Pleasure and profit for the plumber

can be gained by taking a day away from the shop and looking over the handsome fixtures that are made for use in high grade work. A welcome and a wealth of attractions await the visitor at the elegant showroom at the home office of Peck Bros. & Co., New Haven, Conn., the whole second floor of a building 60 x 70 feet, with a 12-foot ceiling and lighted on all sides, is used for the purpose. The floors are of polished hard wood and the celling is painted a clear white, while the supports to the upper floors are incased in polished maple and used for displaying goods. On entering the room from the south the arrangement of the goods is noticeable in the tasteful grouping of the different classes. At the left of the door on the south wall is a large glass cabinet, where, displayed against a dark velvet background, are all sorts of cocks in silver, nickel and red metal, and some ornameted with Minton ware. At the right of the door, in two long show cases with racks above covered with green cloth, are bath and basin fixtures, shower sprays, bath plugs, strainers, soap cups, sponge baskets and a seemingly infinite variety of high grade plumbers' brass goods, all handsomely nickel plated. At one end of these cases near the door a full line of shower baths are shown, the first place being held by a sanitarium shower, with spray, bidet, liver apray, douch and shower. At the other end, laundry tubs of brown Yorkshire, white porcelain porcelain and stone and sinks of similar material are shown. The supports of the building are arranged in three rows of eight each, and the first three supports in each row are used for showing some handsome marble pantry sinks, a barbers' double lavatory with shower attached, arranged for hot and cold water, and a large variety of tile such as are used in wainscoting fine bathrooms. The next two posts in each row show lavatories with different styles of slabs in shape and kind of marble. Above the lavatories the supports are hung with beautifully ornamented lavatory bowls of many shapes and styles. On one support are shown four styles of drinking fountains, with cup holders, for residence and public use. The other supports are surrounded by an octagon apace covered with tile, on which are arranged the Marvel, Dorado, Monitor, Triple Jet, Atlas, Paradox, Gauntlet, Mascot and Henley water closets of the pneumatic siphon wash out and wash down construction, all connected so that their operation can be shown. The apaces between the rows of sup-

ports, for one-half of the building, are used to display baths in all styles, French and Roman, roll rim and wood rim enameled iron, plain and beautifully decorated. Also steel clad, fiber and lined baths of various styles. The other half of these spaces have handsome maple stands on which the different water closets are shown, elegantly decorated and embossed in many alluring designs. Along the north wall eight bathrooms are fitted out in such splendor as is in demand by the most luxurious patrons of the plumber, all being well lighted so that the full magnificence can be enjoyed. In one the feature is the water lily decoration of the bath, the foot bath and the sitz bath, in another is the silver satin finish of the fixtures, and two have Mexican onyx lavatories that are prizes in the beauty of the stone. This exhibit, with the showrooms of the house at New York, at Boston and Chicago, will impress the plumber that the buyer of sesthetic taste can be satisfied in sanitary fixtures.

### TRAPS AND VENTS.

THE PLUMBERS OF BROOKLYN, N. Y., are making complaint at the Health Department over a permit that has been issued permitting an alderman to use second-hand lead pipe in a new job, which is against the law.

Several of the plumbers of Savannah, Ga., who run tin shops in connection with their other business, have asked that they be relieved from taxation as tinners, as it is held that the city has no right to ask the plumbers who run tin shops to pay two taxes.

An increasing trade is being developed by Randolph & Clowes, Waterbury, Conn., for brass tubing among the plumbers. Owing to its strength the seamless drawn tubing is largely used for the supply or service pipes in buildings where a high grade of plumbing is done. It is also used owing to the excellent nickel finish it takes for the flush pipes from closet tanks.

J. H. Hayes is enlarging his plumbing establishment at 793 Tremont street, Boston, Mass., and improving the general appearance of its exterior.

RANDOLPH & CLOWES, Waterbury, Conn., are adding to their line of specialties for plumbers a new bracket for flush tanks made of rolled brass and nickel plated. The stay section has an ornamental twist giving an attractive appearance to the bracket. With an almost endless variety of ornamental brass tubing they offer the plumber a wide line of lavatory legs of handsome finish from which to make a selection. Special circulars, or rather sets of halftone engravings showing the beauty of these goods, can be had on application.

Disley & Weyand, Waterbury, Conn., have broken ground for a new plumbing and sheet metal shop and showroom. The building will be 60 x 85 feet, three stories high, with basement which will be well lighted. The building will have a sheet metal front

as a specimen of their work, and with large plate glass windows. The basement will be used for a plumbing shop, and will contain their pipe cutting machinery. The first thoor will be used for a plumbing showroom and offices. The second floor will be used for a sheet metal shop for cornices and skylights, which they make a specialty of. The upper floor will be used for storeroom.

SEWER PIPE MANUFACTURERS of Western Pennsylvania, West Virginia and Ohio held a meeting last week in Pittsburgh with the object of discussing methods of effecting an improvement in prices, which it was agreed by all are at present too low to afford fair profit. The general opinion was expressed that it would be advantageous to reorganize the old tri-State organization. A further meeting, to perfect the details, will be held at a future date, not yet agreed on.

THE TORONTO STEEL CLAD BATH & METAL COMPANY, L'mited, Toronto, Canada, issue a neat little circular emphasizing the advantages of their steel clad baths. The point referred to particularly is the absence of wood work.

As a result of an investigation of the Board of Health of Fall River, Mass., one of the schools containing a dry closet system has been closed.

ALBERT A. GRADY, who has recently established a plumbing business at the Highlands, Mass., has just finished the plumbing of a house for J. M. Currier, and will do the work on Clarence Milliken's house at the Highlands.

ONE of the latest additions to the already large manufacturing plant of Randolph & Clowes, Waterbury, Conn., are toola for making the weil-known Brown copper boiler of a capacity of 200 gallons. The largest size previously made was of 150 gallons' capacity. These boilers are made to carry a pressure of 150 pounds, but are made to carry a pressure of 300 pounds when so ordered. A feature of interest to the plumber in connection with the Brown boiler is that it can be repaired when burst or collapsed at either end, providing the other end is in good condition. On the boiler being returned to the factory by the firm the plumber buys from, the boiler will be repaired at a reasonable figure.

THE BOARD OF PLUMBING INSPEC-TION has granted a certificate of competency to do plumbing work to Edward K. Glngerbach of 33 Jackson street, Yonkers, N. Y.

LYMAN D. MILLS, Middletown, Conn., has been awarded the contract for furnishing the pipe for the new reservoir of the Durham Center Water Company.

F. & F. C. BOOTH have succeeded to the plumbing and heating business of the late Alfred Hopkins at 87.89 Middle atreet, Bridgeport, Conn. Having been connected with the management of the business for a number of years, they are amply qualified to serve their patrons satisfactorily.

IN REPORTING to the School Committee at Fall River, Mass., the Board of Health made the following comments on the latrine system of closets in use. "This system consists in a trough in which water is left standing. There is nothing automatic about the flushing. It is accomplished by operating a lever, and this part of the work with the refilling of the troughs with water is one of the janitor's duties. The

closets should be tlushed very frequently, but the members of the board report that some of the closets did not appear to have been flushed for several days and in one of the troughs there was no water. An automatic flushing tank can be used in connection with this system that would not be dependent upon the forgetfulness or unforgetfulness of the janitor. With such a method of flushing the system is much mere satisfactory, but at its best it is not a very good one. Its special recommendation for use in school buildings is that the scholars who might be inclined to mischieveusness cannot dis-turb the mechanism of the system." The directions of the Board of Health are that the old closets in use be changed for some improved system that will be connected directly with the sewer, and the flushing and ventilation of which will be certain.

THE HUMPHREY MFG & PLATING COMPANY, Kalamazoo, Mich., are sending to the trade an eight page pamphlet of their automatic hot water heater for supplying hot water instantly and for warming bathrooms. It is printed on enameled paper in two colors and the cu's are shown on a tinted background. The first cut shows the apparatus connected for use with a bathtub and lavatory and working under pressure.

The second cut is a sectional view showing the internal construction with the gas burner that is used for heating the water and for heating the bathroom. The construction consists of a spiral corrugated copper shell through which the water passes to be heated, and which is subjected to the heat of the gas flame from below. It is said that it will heat water for a bath in about ten minutes.

GAYNOR & MITCHELL, Bridgeport, Conn., make a specialty of the small brass screws, washers and spring washers and other small parts used in the manufacture of basin cocks, hibbs, &c., by the manufacturers of plumbers' brass goods and the larger supply houses.

No visitor to the machine shop of the Armstrong Mfg. Company, Bridgeport, Conn., can fail to be impressed with the care that is taken in the manufacture of their adjustable dies for threading pipes and their adjustable pipe cutter. These goods are found in many plumbing shops and are held in high esteem. The firm are developing a considerable trade for their power pipe cutting machinery. Their power machines cut pipes from 1 to 6 inches in size, and one of the special advantages claimed for them is that they occupy so little space on the floor. These machines and their hand cuttling tools are not only popular in the United States but large shipments are made both to Europe and to South Americs.

Zalmon Goodsell. Bridgeport, Conn., is one of the busiest plumbers in the city, and confines his work principally to jobbing for custom trade.

E. C. Hargrave, Hinckly, N. Y., has recently added a Curtis & Curtis pipe cutting machine to the tools in his shop for doing plumbing and heating work.

John Hamilton, Bridgeport, Conn., is one of the old manufacturers of plumbers' brass goods, including a varied assortment of compression and other bibbs and lavatory cocks. He runs a well equipped brass finishing shop in connection with a brass foundry and is prepared to make special goods on short notice. Excellence of material and workmanship is one of the claims he makes for his productions.

THE BRIDGEPORT STUAM HEATING Company, Bridgeport, Conn., are just going into the plumbing supply busi-The first floor of their building is used for offices and pipe cutting machinery. They have tools for cutting pipe up to 8 inches in diameter and carry a full line of iron plpe and fittings. On the second floor they have a large showroom in which they make a display of modern plumbing fixtures of The third floor ocvaried character. The third floor oc-cupies four buildings and was previously used by an athletic club as a gymnssium. This floor is fitted for storing soil pipe fittings, plumbers' brass goods, steam fitters' supplies, sanitary earthenware, various styles of bath and basin fixtures, lead traps and bends of different sizes, and pumps, and all of the small things that go to make a complete line of plumbing supplies. This floor is connected with the office floor by a small dumb waiter so that local orders may be filled promptly.

Montgomery & Patterson, Eighteenth street and Seventh avenue, New York, find the Douglass instantaneous water heater a device well suited to the requirements of some of their customers, and are using these devices in quantities with satisfaction.

D. W. Borett, who has been in the plumbing and tin business, at Dalton, Msss., for the past seven years, has bought out the interest of Pelham Hague of the firm of Hague & Noble of Pittsfield, and will close out his Dalton Biock store and remove there January 1.

John Warner and Lincoln Grow, Ashley, Pa., propose building a machine shop, to which will be attached a plumbing department.

DAVID E. WILLIAMSON has commenced work on the city plumbing shop to be erected north of the west side pumping station at Saginaw, Mich.

P. J. Toomay, New Britsin, Conn., has added tinning to his plumbing business and has engaged William Touterlock, formerly with S. II. Beard.

Christian L. Wolf, who has been elected Alderman at Manchester, N. H., has been in the plumbing business for ten years at West Manchester.

THE STANDARD SUPPLY COMPANY, a new house in the plumbing supply business at Jacksonville, Fia., are making a specialty of the Douglass instantaneous water hester.

Charles Moun, 156 Seventh street, Hoboken, N. J., has placed a Perfect gas controller on the gas main in his building with the idea of showing to his customers the advantages to be gained from its use in preventing undue pressure of gas on the burners, as is frequently the case when increased pressure is put on the service mains toward evening.

C. B. Hall, assistant engineer in the sewer department, Washington, D. C., has been appointed to the position of inspector of plumbing, made vacant by the death of Samuel A. Robinson, who held the office since its establishment. The salary of the office is \$2000 a year. Mr. Ball has been connected with the plumbing department for the past three or four years.

Erskine Rumsey has been appointed general mining engineer of the Alabama division of the Tennessee Coal, Iron & Railroad Company.

# STEAM AND HOT WATER.

### Society of Heating Engineers.

The American Society of Heating and Ventilating Engineers will hold its annual meeting in New York, beginning Tuesday, January 22, 1895, and continuing for several days. The programme for the meeting (now in preparation) will include the reading and discussion of scientific papers by prominent engineers of the society, topical discussions or discussions of problems presented by members, involved in the practice of modern heating and ventilating engineering, also visiting and inspection of noted heating and ventilating plants in and about New York, &c. The society, through its Board of Managers, has concluded arrangements whereby its headquarters will, after December 1, 1894, be located in the commodious and finely appointed building of the American Society of Mechanical Engineers at 12 West Thirty-first street, New York City. A fine library, reading room, assembly hall, &c, and excellent service being secured to the society and its members.

### Heating a Barber Shop.

From W. F. S., Bayfield. Wis.—I send herewith a plan, shown in Fig. 1, of a barber shop which the proprietor wishes to have heated with hot water from his bath boiler. The building is 13 feet front, 31 feet deep and has a 9-foot ceiling. It has two stories and is plastered, but the upper rooms are not occupied. The front is mostly of glass, amounting to a space 7 x 13 feet. On the plan there is shown a 66-gallon gaivanized iron boiler and a 16-inch Wilks heater. The heater is tapped on the top for two 1½-inch connections, and tapped on the sides near the bottom with

The building faces north, and the space along the west side is occupied by chairs for the walting customers.

Answer.—Considering the amount of heating surface that will be exposed by the heater, the boiler and the piping to and from the heating coil, it is quite probable that a coil, placed along the north end of the room, exposing 100 feet of surface, will be ample to secure

radiator exposing 100 square feet of surface is used, 200 lineal feet of pipe will be required. If 1-inch pipe is used 3 lineal feet of plpe exposes 1 square foot of surface, and 300 lineal feet of 1-inch pipe will be needed. As the water heater will be connected to the boiler any expansion of water will work against the supply to the boiler, whether that be city pressure or tank pressure,

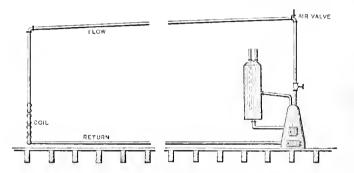


Fig. 2.—Method of Piping.

a comfortable temperature. In order to make the circulation easy a 1½-inch flow pipe will probably be best. This should run up to a point a few inches below the celling, as shown in Fig. 2, where it should run into a tee in the top of which an air valve should be connected. From the side of the tee, a flow main of the full size should be run over to the heating coil. It is quite probable that a radiator will be more orna-

and an expansion tank will not be necessary.

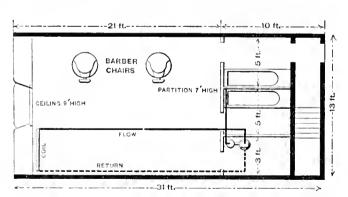
### Combination Heating.-I.

BY J. W. HUGHES

Noticing from time to time in the columns of The Metal Worker questions referring to combination heating that conveyed to my mind the belief that in many towns in the United States the furnacemen were passing through the same experience as occurred in the business in Montreal some 20 or more years ago, it occurred to the writer that a brief account of the evolution of combination heating, from a single coil in connection with the water back of a range or stove, to heat an adjacent or overhead room, to the apparatus as it finally has developed in connection with the hot air furnace, would prove both interesting and profitable.

both interesting and profitable.

The methods of heating commonly used during the writer's early experience in the heating trade were wood stoves, next coal stoves, which seemed to reach their highest possibilities as house heaters in the Littlefield Railway coal burners; then came the modern hot air coal burning furnace, although there were a number of hot air furnaces in use that were fired with wood, and one that was constructed by my old boss that was constructed by my old loss that combined the cooking range and hot air features, and gave very fair satisfaction. Very large buildings were warmed by steam, and a few by hot water. The oldest hot water apparatus of which the writer has knowledge, and which was working well up to about a year ago, when the house it was in was pulled down, must have been fitted about 50 years ago, as 25 years ago it was overhauled for the first time and it had then been 25 years in use. The original botter for this apparatus was made of boiler plate in England, and continued to do its work well and cconomically up to about six years ago.



Heating a Barber Shop .- Fig. 1.-Floor Plan.

four 1½ inch holes. Where is it best to connect the flow pipe—from the top of the boiler or from one of the unused holes in the top of the heater? Where should the return pipes be connected? What size of pipe should I use for the flow and return from the heating coil, and where should the heating coil be placed? What shape and size should the heating coil be? It will be noticed that the back part of the building is divided into three rooms, two of which are bathrooms and that the partition is only 7 feet high, leaving a space of 2 feet between the top of the partition and the ceiling for a circulation of air.

mental and satisfactory, but either a manifold coil made of 1-inch pipes or a return-bend coil made of 1½-inch pipes will render good service. The return from the radiator can readily be run along the floor on the west side, back of the waiting chairs, and where it comes into the small room where the heater and boiler are located it can be run across and connected at one of the openings in the side of the heater. Two lineal feet of 1½-inch pipe exposes 1 square foot of heating surface, and if a

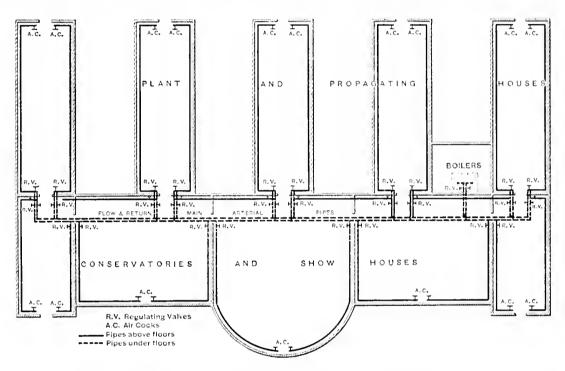
As the city increased in size and wealth, larger houses were built, and the problem of how to heat them economically, especially as to first cost, when they reached a size beyond the capacity of the ordinary hot air furnace, set the furnacemen scheming as to the possibilities of making a combination of two well-known and effective systems, viz : hot air and hot water, using the latter medium for the rooms too far from the furnace to be effectually warmed with hot air. Whether G. R. Prowse or C. Ryan is entitled to the credit of installing the first complete combination apparatus the "deponent sayeth not," but they were both early in the field and each fitted many very complete and excellent working furnaces.

But the original idea was conceived and acted upon by a gentleman not in any way connected with the heating trade and successfully carried out in his private residence, being one more a noise which, in its turn, raised a acare. From that there was a raise all around of talk and temper, and almost everything else but dollars and patience. Or the coil was too small and failed to raise the temperature, but was an eminent success in all the other raises. Theu it was the mains that were wrong, some coils got all the heat, others got none. Sometimes the whole energy of the apparatus seemed to exert itself in a very successful effort to keep the water in the expansion tank at the boiling point while zero reigned supreme in every other part of the system. the merry war went on for years. What seemed to work all right and make a perfect cure on one job failed entirely on another. Each job and each different kind of furnace seemed to call for an entirely different kind of treatment, but in the end we got it down fine and there was no more trouble to be expected

box is placed in the boiler house at a sudicient hight above the hoilers to regulate the supply of water and is joined to the return pipe to the boiler.
The pipes are preferably 4-inch cast iron, with rust joints, or the joints may be made with either red lead or Portland cement. A grating placed over the pipe below the floor level allows the heat in the arterlal pipes to be utilized.

### Standard Pipe Flanges.

The result of nearly three years' labor in relation to adopting standard tlanges is about to become effective, the exact time set for the new order of things being January 1, 1895. Over two years ago a committee was appointed by the American Society of Mechanical Engi-neers from among their members to investigate the subject of adopting standard flanges. About the same time a similar committee was appointed by



Heating a Greenhouse with Hot Water.—Plan View, Showing a System of Low Pressure Heating for a Range of Buildings.

proof of the fact that improvements are frequently brought to light by others than those who are more closely identified with the trade affected by the change.

After their lead the practice became general and spread from Montreal to other cities, both in Canada and the United States. Probably the first apparatus of the kind fitted in the United States was installed by W. H. Pennell, in Portland, Maine. He having heard of it from Canadians in that city, came to Montreal to see what the novelty was, and afterward fitted quite a number of furnaces. The men who went into the business were not steam or hot water fitters, but hot air men, and for years they had the piping done by the regular steam fitters. That is how the writer came to have experience in this particular line.

As the old saying about the weather "that all rules fail in a season of drought" is true, so it seemed to be with the combination furnace. moment a fitter struck a job of the kind all rules seemed to fail and he found out that what he did not know

from a combination furnace than from any other form of heating that had by years of good behavior established a character and reputation that saved it from threats of being thrown out, if something did occasionally go wrong. Now what we did and how we did it during all these troublesome times is what it is proposed to record in the article following this.

### Heating a Greenhouse with Hot Water.

From W. McD., Stapleton, S. I., N. Y.-I saw in The Metal Worker some time ago diagrams illustrating the manner of passing a doorway with heating pipes in a greenhouse. I herewith send a sketch illustrating the plan of a well arranged low pressure system in a range of houses, which several years' experience has shown me to be the best. idea is to have one or two saddle boilers and flow and return arterial pipes, with check valves for regulating. From these, at each side of the house, branch pipes are taken to the stand, these also being provided with regulating valves. about hot water circulation could fill a book. The coil in the furnace was too large and raised steam, that raised low the air to escape. The expansion

the Master Steam and Hot Water Fitters' Association to consider the same subject. Cast iron flanges of pipe, steam engines, steam pumps, and valves for steam, water, &c., have been ex-haustively discussed, and the table adopted, as shown in the report of the American Society of Mechanical Engineers of July 18, 1894, will be substantially the one adopted, there being a few modifications under advisement in a few of the larger sizes not com-monly used. The committees were instructed to devise some standard which would be sufficiently broad to warrant its adoption by the various manufacturers. Both committees have met individually and jointly, the Master Fitters' Association, at their annual convention last June, recommending a conference of the two committees. This resulted in a meeting at the rooms of the Mechanical Engineers, July 18. At this assemblage were not only the members of both committees but representatives of the following manufacturers interested: E. P. Bates, chairman Master Steam Fitters' Association Committee; Geo. F. Blake Mig. Company, represented by J. G. Winship; Crane Company, by Geo. T. Coppins; The Eaton, Cole & Burnham Company,

by E. H. Cole, W. H. Douglas and F. A. Strong; Gillis & Geoghegan, by Stephen J. Geoghegan; Jenkins Brothers, by A. B. Jenkins; Jarecki Brothers, by A. B. Jenkins; Jarecki Mig. Company, by Oscar Jarecki; The Kelly & Jones Company, by John T. Kelly; Knowles Steam Pump Company, by J. G. Winship; Morris, Tasker & Co., Incorporated, by M. B. Feldman; McNab & Harlin Mig. on. 16. Feidman; McNati & Harlin Mig. Company, by Geo. T. Coppins; Nason Mig. Company, by Carleton W. Nason and Frank A. Bucknam; Snow Steam Pump Works, by James II. Snow; the Solvay Steam Process Company and Straight Line Engine Company, by John E. Sweet; the Walworth Mig. Company, by Geo. T. Coppins and Levi R. Greene: the Walworth Construction R. Greene; the Walworth Construction & Supply Company, by A. C. Walworth; Henry R Worthington, by A. J. Caldwell; R. D. Wood & Co., by L. R. Lemoine; the Wheeler Engineering Company, by F. M. Wheeler. Carleton W. Nason of the Nason Mfg Company was chosen chairman and W. II. Douglas of Eaton, Cole & Burnham secretary. The fact was brought out secretary. The fact was brought out that the work of the committees was the result of careful acientific analysis, and that the cross section paper scale they had constructed was made for the purpose of exhibiting the lines of their work as plotted graphically. The table referred to above was unanimously adopted after much critical discussion, and it was decided to have the secretary send reports to interested manufacturers stating that it was the sense of the meeting that the diameters decided on be adopted, to take effect January 1, 1895.

### School Boiler Explodes.

The startling accident of a steam boiler exploding in a school building recently, where several pupils were injured, has brought about a very thorough investigation of the cause, which we give below, and which clearly shows that there is nothing at all dangerous in steam as a system of heating when the apparatus is good and properly attended.

Inspector Hawley of Chief Wade's staff of boiler inspectors in the State of Massachusetts has made an investigatigation of the explosion at the Centre Grammar School at Uxbridge, Mass., Nov. 22, in which the lives of 200 childreu where endangered, and submitted his report, which is as follows:

The exploded boiler had been in use about 15 years. It was of cast iron, nearly about 15 years. It was of cast fron, hearly square in shape, with an internal tire hox extending the length of the boiler to the rear water leg. The grate was not as wide as the fire box, the heated gases passing over each side of the grate under the bottom of the water leg and along the external shell to the flue.

The table, was conveyed of two inde-

ternal shell to the flue.

The boiler was composed of two independent sections over and surrounding three sides of a single grate, the sections being connected only by circulating pipes. The first section was 26 inches long by 40 wide, and the second section was larger, being 28 long by 40 inches wide. The top of the fire box was slightly crowning and was provided with a fusible plag, and the top of the external shell of each section was slightly crowning. A cover was bolted on the center of the top of each section and from these covers steam risers were taken.

were inken.

The second and larger section gave way, The second and larger section gave way, blowing the top of this section completely off, one piece weighing over 100 pounds. The line of fracture was from 2 to 4 inches from the sides of the boiler. The boiler plate varied in thickness from ½ to a scant 3- inch.

An examination of the fracture shows that it started from two cracks, one about 4 inches long at the rear, on the right hand side facing the boiler, and a smaller crack at the front right hand corner. These

cracks were evidently caused by the bulgcracks were evidently caused by the bulging of the top by the pressure beneath it, causing the plate to rise and fall with every change in pressure, finally cracking at the bending point. The crack had been bleeding and evidences of the leak were ou the external shell and I do not believe were of very long standing. The front plate gave way at the larger crack, this being clearly shown by the position in which the broken piece was found and also from the position of the steam riser pulled from this section by the explosion.

of the steam riser punch from this section by the explosion.

From the statements of the janitor it appears that he left the school at 8.45 o'clock, having another school to attend to. He left 4 pounds pressure upon the boiler, a beavy hard coal fire, with the furnace door closed and the automatic damper open, which was expected to else the draft door closed and the automatic damper open, which was expected to close the draft door with at increase in pressure. The boiler with at increase in pressure. The boiler supplied steam coils in six rooms, four of

which were occupied.

The day was warm and ull the coils but one were shut, hence there was almost no

one were shut, hence there was almost no demand for steam, and a heavy fire on the grate, which, with the fire door closed, would continue to burn freely for a long time after the draft door was closed.

The safety valve was 1½ inches on a ¾-inch pipe, making practically a three-quarters safety valve, and this was totally inadequate to discharge the steam as fast as produced, without an increase of pressure. That this is the case was also shown by an experience of the janitor last winter, when he returned to the boiler and found the experience of the jainter has whiter, when he returned to the boiler and found the safety valve blowing freely, set at 7 pounds, yet the pressure on the boiler was 20 pounds, to which it had risen despite blow-

pounds, to which it had risen despite blowing off.

All the conditions were present to bring about a heavy pressure on the boiler. A heavy fire, no use for the steam made, a safety valve totally inadequate to relieve the boiler, leaves no other conclusion than that the pressure reached a point unusually high with this boiler, and in the cracked condition of the plate, the explosion was the natural result.

Even with the crack and the high press-

Even with the crack and the high pressure at which this boiler exploded, it might still have held had not the boiler been naturally weak. The boiler itself, under any condition, is faulty in design and an unsafe one to use. The large section was almost flat on top,  $20 \times 40$  inches, in places less than the section was almost flat on top,  $20 \times 40$  inches, in places less than 1/4 inch thick, of east iron, and this large surface was not stayed in any ade-

large surface was not stayed in any adequate manner.

Deducting a ring four inches wide, as supported by the vertical sides, it leaves an unsupported, practically flat plate, with an area of 800 square inches, which, with 10 pounds pressure on the boiler, would bring a load of 8000 pounds on this unsupported plate. With 20 pounds pressure, at which the janitor has found it, the load would be 16 000 pounds, or eight tons.

the janitor has found it, the load would be 16,000 pounds, or eight tons. If a man should set up a plate of thin east iron, supported only on the sides, 20 x 40 inches and expect it to support a movable load of eight tons, the foolburdiness of the attempt would be instantly condemned by every observer; yet that is exactly what was done with that schoolhouse boiler, how often no one knows, but very frequently known to be very near that lond. Not only is the strain dangerously excessive, but it

often no one knows, but very frequently known to be very near that load. Not only is the strain dangerously excessive, but it acts to crack the boiler exactly as it could have been predicted it would.

In setting the boiler it was not furnished with check valves to prevent the loss of water by a failure to close the radiator return valves. This, bowever, has nothing to do with the explosion, but is dangerous, and is liable to produce low water, and is a common condition in schoolhouses. The fusible plugs, found melted, show it to be in working condition, but they did not melt until after the explosion, which indicates that there was plenty of water in the boiler when the explosion occurred.

To summarize: The direct cause of the explosion was a considerable increase in pressure in the boiler, made possible by the safety valve being defective in size, and a faulty hoiler, presenting a large unstayed that surface, further weakened by being cracked, the direct result of its faulty construction.

struction.

THE BELKNAP MFG. COMPANY, Bridgeport, Conn., have found a very saliafactory demand for their line of brass goods for heating plants. They make a specialty of quick opening hot water valves, angle valves, radiator clbows and unions, &c., for both steam and hot water work.

### HEATING NOTES.

THE CONSOLIDATED SAFETY VALVE COMPANY, New Haven, Conn., make a specialty of their nickel seated safety valve, which they claim will not become fastened together by corrosion. They also make cheaper grades of safety valves, such as are used in connection with heating boilers and in connection with high pressure or closed hot water heating aystems.

CURTIS & CURTIS, Bridgeport, Conn., recently shipped one of their pipe cut ting machines for cutting pipe from 2 to 12 inches in diameter to the Walworth Mig. Company of Boston. They are preparing a shipment of eight machines to go to South America and have recently made some large ship-ments to England. One of their very popular machines is made to cut pipe up to 8 inches in size by hand. Their shipments during the past week have taken in many of the principal cities of the United States.

THE MANY FRIENDS of James A. Harding in the heating trade will envy him the rest he is taking at his home in Vineyard Haven, Mass. After 18 years of active service, the latter portion of which was with the Boynton Furnace Company of New York, he has severed all business connections and closed up his deak to take up his gun for a season. He is widely known as the con-tributor of one of the letters in the series of essays on house heating that appeared in The Metal Worker and were later published in book form. He has frequently written for the papers on hot air, hot water and steam heating, always taking a practical stand and giving interesting information.
We will venture to say that he will find pleasure in learning the doings of the heating trade from his friends, though he is now in the pursuit of pleasure as a business at the above address.

THE ASHCROFT MFG. COMPANY OF Bridgeport, Conn., have furnished many of the heating boiler manufacturers with the steam gauges used in connection with their steam heating apparatus. The detail of the construction of these goods is very thorough, each dial and gauge being carefully tested and claimed to be absoluely correct. Their steam gauges are used by the United States Government and are on all of the new war vessels.

THE BUSINESS of T. C. Joy & Co., at 82 Lake street, Chicago, Ill., will hereafter be conducted under the manage-ment of William H. Harrell, formerly of the Harrell Heater Company of Dunkirk. Mr. Harrell, in addition to his knowledge of radiator manufacture, is a competent engineer as well as a master ateam fitter, and is moreover an agreeable business man, whom the Chicago trade will be glad to welcome. Mr. Harrell succeeds C. W. Wright, the former representative of T. C. Joy &

"FAULTLESS FURMAN BOILERS" is the title of a pamphlet issued by the Herendeen Mfg. Co. of Geneva, N. Y. It is the seventeenth edition of their catalogue, price list and list of references. The volume gives illustrations and full descriptions of the Furman boilers, together with a long list of relerences and illustrations of many residences and other buildings warned by this apparatus. Various other circular s of interest accompany the pamphlet.

# ROOFING AND CORNICE.

### Eave Finish for Metal Roofs.

From ROOFER.-Herewith is presented a number of methods for securing sheet metal roofs at the eaves. A very simple method is shown in Fig. 1, where the tin is bent over the roof boards and nailed. This manner of securing the tin is very defective, as the underside of the roof boards are unprotected, and, unless the tin extends be-

strip the tin is laid and locked over the edge. This does not form either a fire or wind proof fulsb, as the underside of roof boards are unprotected. In Fig. 4 the roof tin is so formed as to reach under the roof boards and cover them, and if the space between brick and roof boards is well filled with mortar or cement, a tight joint will result. As shown in Flg. 5, strips of tin are so formed as to extend

secured by nailing. The roof tin is then to be hooked on and double seamed over.

#### Laying Gravel Roofs.

From F. G. BUTLER, West Hartford, Conn.—In the reply to "J. A.," Chieago, in The Metal Worker, October 13, giving directions for laying gravel roofs, you have gone over the ground pretty thoroughly. Having experience with roofs which I have laid and watched for years, I beg to say that I have found the pitch mentioned—1 inch to the foot—just twice too much. If the roof pitches only  $\frac{1}{4}$  inch to the foot it is ample. If the pitch is more the sand washes off and wears the roof, requiring coating oftener. The roof boards cannot be too well seasoned and should be planed on one side and matched. Always lay the dressed side up. Cover first with two ply felt laid across the edges of the boards, lapping 2 inches; tack them just enough to hold in place and dust with fine, clean sand; then commence at the lower edge with

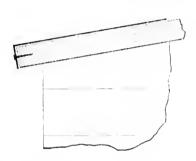


Fig. 1,-Single Bend in Tin.

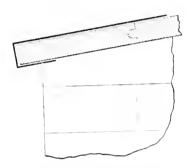


Fig. 4.—Tin Bent Under Edge of Roof.

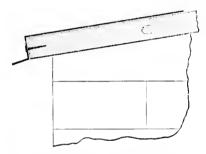


Fig. 2.-Double Bend in Tin.

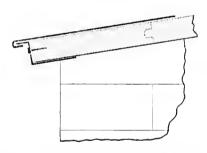


Fig. 5.—Drip Formed by Bent Strips of Tin.

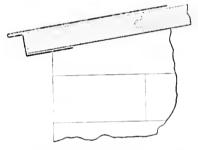


Fig. 7.- Tin Bent Under Roof Board.

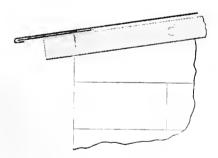


Fig. 3.-Sheet Iron Nailed to Roof.

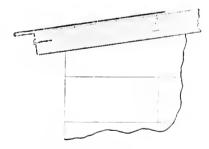


Fig. 6 .- Drip Formed in Roof Tin.

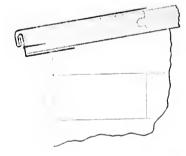


Fig. 8.-Double Seam at Eares.

EAVE FINISH FOR METAL ROOFS.

low the edge of the roof boards, capillary attraction will cause water to be drawn between the tin and the boards. In Fig. 2 the tin is bent down and out so as to form a drip, and while this form appears to be an improvement on the previous one, the underside of the roof boards being unprotected, there is a chance for either wind, fire or water to enter. In Fig. 3 is presented a method that finds favor with many tinners. A strip of galvanized iron is of tin can be formed, as shown in Fig. nailed along the eaves, and over this 8, and placed under the eaves, being

under the roof boards, and at the same time project sufficiently to allow the roof tin to be hooked on, thus protecting the under side of the roof boards and forming a drip. In Fig. 6 the roof tln is so formed as to produce a drip, the tin being secured to the roof boards In Fig. 7 the roof tin is by nailing. bent in such a marner as to form a drip, and at the same time extend under the lower part of the roof boards. Strips

the outside felt of four ply, if you can obtain it, as it costs but little more than obtain it, as it costs but inthe more than three ply; nail at the edge and unroll to the top or highest point of the roof; commence at the bottom with another roll, lapping the edges about 2 inches and nailing about 2 inches apart. Now cut strips of felt 4 inches wide and roll them. Use a thin, sharp butcher knife, dlpped in keroacne oil occasionally, for cutting the strips, and it will be found much easier to cut on a slight bovel. Com-

mence at the bottom and unroll the strips exactly over the 2 inch lap. Have a man precede you with a brush and hot roofing composition so that you will unroll the strips into the hot coating. Now, have another hand follow nailing each edge of the strip. No water can get through this seam. The advantage of the sanded surface between the two ply and the outside four ply is apparent. No outside felting should ever be stuck down to the roof boards, for no matter how well these are scasoned there will be more or less shrinking and swelling, producing cracks in the roof. I have laid roofs that never leaked a drop, and outlasted any tin roof, at half the cost. Having once had occasion to chop a hole through one of these roofs for the purpose of running a chimuey through it, I found it was more like chopping through boiler iron than anything else to which I could compare it. I prefer a broad headed tack, about 1 inch long, to the wire nails with tin washers, because the heads sink down level, and cover smoothly with the roofing preparation, and wire nails soon rust off in roof boards. A clean coarse sand is preferable to gravel, and I have found the old style farmers' grain separator, or fanning mill, admirably adapted to separating out just the right size for use. If the sand is dry it will work all right and blow out all the duet and right and blow out all the dust and shake out all too coarse.

# Instruction in Sheet Metal Work.

Some time ago H. M. Sanders of Washington, D. C., conceived the idea of starting an evening class in pattern cutting, but we are sorry to say that the enterprise, which he put in practice in Baltimore, did not result successfully. At a time when considerable interest is taken in this branch of work and classes are starting in various parts of the country, it will be interesting to read the account that Mr. Sanders has sent us of his attempt in this direction:

"Perhaps you may wish to hear the result of my evening achool enterprise for sheet metal works.

last September in Baltimore. It was a
the fact. Why it was failure—this is the fact. a failure, or some of the causes that worked against the success of the enterprise, you may be interested to know. In the first place, it was a new enter-prise which the Baltimoreans seemed slow to take up and appreciate, and while those prominent in the business here say it was just the kind of school necded, most of the mechanics working at the trade did not seem to appreciate the advantage of such an education. After they get through with their day's work the hight of their ambition, in most cases, seems to be to have a good time, take a sail on the river or go fishing for crabs. If they can get their \$2 or \$2.50 a day, that seems to fill to the brim their aspirations. Still all are not of this class. But mostly, among the older mechanics, they are satisfied to plod along in the old rut.

I found that most of those who show

I found that most of those who show any desire to take up this branch of study are among the young men in the trade, but the wages paid them especially are so low that they did not feel able to go to such a school. It is true I found a very few who were willing to pay the price I charged, but not enough to make me feel justified in going on with it. However, although the school project was not a success in one way, I think perhaps it may prove a success in another. It has been the means of stirring up the subject so that

the trade sees the need of some such a movement, and the Polytechnic Institute and the Maryland Institute, two prominent educational institutions here, are taking up this branch of study, and as a knowledge in this direction can be obtained at these places free, or at a nominal price, I am inclined to believe that there are quite a good many, especially among the young men, who will take advantage of it. I know of a number who have held off coming to my school in view of it.

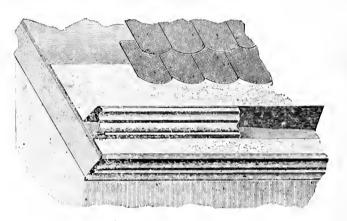
One of the first things I did after advertising the school was to send out circulars to a number of leading firms in different parts of the country for the purpose of getting an expression from them as representatives of the trade upon the value of such a school to the trade. There was a generous response and in every case favorable to the school, so much so that I have not wholly given up the idea of a school, though perhaps on a different basis from the late effort in Baltimore.

## The Sims Ornamental Roof Gutter.

The Sim's Manufacturing Company of Newark, Ohio, are offering the trade a new form of metal gutter, as shown contract for the school and parish buildings being erected in their city. They have completed the work on the Christ's Church, at Ansonia, and have nearly finished the work on the St. Cecilia's Church.

M. CULLEN, Hartford, Conn., has the contract for the tin roof, skylights and sheet metal front for the Fisher brewery. He is putting up 6000 feet of sheet metal cove in the insane asylum at Middletown, Conn., and is doing the sheet metal work on the Park Street Chapel at Hartford.

J. Reilly, Jr., Bridgeport, Conn., has a contract for the copper and galvanized work on the St. Augustine Church, the front of which will be covered with rock faced aiding and the cornice made of galvanized iron. The roof will be of 18 ounce copper, laid between wooden cleats atanding 3 inches high and 2 inches thick. The copper courses will be scant in width to fill the space between the cleats in order to allow for expansion. The edges of the courses will extend about \$\frac{1}{2}\$ inch above the top of the cleat, and will be turned down away from the cleat. A sheet copper cleat will be nailed to the wooden cleat and extend beyond the edges on two courses of the other cop.



The Sims Ornamental Roof Gutter.

in the accompanying engraving. It is made of either galvanized iron, copper, or terne plate, in 10-foot lengths and of any width from 12 to 30 lnches. Its construction permits of attaining any desired fall, yet always presenting a straight face the full length of the roof, no matter how long. The manufacturers make special claims for its cheapness and say that it carries off the water perfectly without leakage. It is made of one piece extending from the edge of the roof up under the top covering of the latter and presents a pleasing appearance when in position. It is also equally well adapted for porch roofs and can be furnished in various face designs.

### FLASHINGS.

GORMAN & ENGLISH, Wilkes-Barre, Pa., have the contract for roofing the new Miners' Bank Building at Pittaton.

Barlow Bros., Waterbury, Conn., are doing the roofing on the Fred Rice block, the American Ring Company's building and on the American Printing Company's building, besides a number of smaller roofing contracts.

THE copper cornices and sheet metal work on the Curtis Home at Meriden, is being done by Disley & Weyand, Waterbury, Conn., who also have the

per. These copper cleats will be placed about 8 inches apart, fastened with copper nails and the ends of the cleats will be turned down over the copper courses. A copper cap will cover the wooden courses lengthwise, and will be wide enough to have an edge turned over the edge turned on the courses, forming a seam which will be turned down tight against the wood work. By putting the copper on by this method no trouble is anticipated from expansion and contraction, which are apt to make trouble in copper roofing when proper provision is not made for them. Two copper crosses will be placed at the ridge of the roof, and with the pedestals will stand 16 feet high. These crosses are very handsome pieces of sheet metal work.

G. Dhouve & Co., Bridgeport, Conn., have a building that presents a very attractive appearance, the front being covered by the St. Paul rock faced siding, for which they have the agency, and the front has large plate glass windows with a bow window on the second floor, all in sheet metal. They have the contract for putting a roof on the new building of the Farrell Foundry & Machine Company, at Ansonia, Conn. The roof covers 40,000 aquare feet and will be laid of 14 ounce copper in the standing seam style, common in tin roofing, with the cleats about 12 inches apart, made of sheet

copper and fastened with copper usils. About 30 tons of Seymour copper will be used for the work. They also have the contract for making copper skylights for the same building.

FRANK H. SNEATH of Farmington, Conn., has taken the following roohing contracts: The lligh School Building at Bristol; the residence of Henry Freese nius; Miss Ellis' house, New Britain; four roofs for the Middlesex Quarry Company, and one for Shaler & Hall, Portland; a large roof for the Peck, Stow & Wilcox Company, Southington, and a roof for the Middletown Savings Bank of Middletown.

CHAS. ALDRICH, president of American Roofing Company, St. Louis and Cincinnatl, was one of the guests of the Cotton Belt and Iron Mountain lines on the excursion to points in Texas last week. Mr. Aldrich reports trade throughout Texas in good shape, not withstanding the low price of cotton. He states that collections are in excellent condition and the indebtedness of the merchants and manufacturers is considerably less than usual. He managed to pick up a few orders for his company.

F. W. STELLING, Franklin avenue, Hartford, Conn., has a number of contracts, among which are the contracts for the copper work on the new schoolhouse at Bristol, the Lyman house on Woodland street, the addition to the State Armory on Elm street, G. Fox & Co.'s alterations on Main street, and the new Watkinson Farm School Build-

C. H. KANE, Nyack, N. Y., is doing the galvanized cornice work and roofing on the St. Ann's Church, in his city, and is also making the ornamental sheet iron finials and crosses for the same.

An addition will be built to Garde's Hotel, New Haven, and galvanized iron imitation of stone will be used on the old as well as the new part of the build-

T. W. Dorsett, proprietor of the Hoboken Cornice & Skylight Works, Hoboken, N. J., was last week awarded the contract for roofing the Government immigration buildings at Ellis Island, N. Y. This work will require about two carloads of roofing tin. He will use for this purpose Merchant's Old Method, IX 20 x 28 Mr. Dorsett has lately carried out some important roof ing and galvanized corrugated iron work, such as the State Line Pier, the Hoboken Ferry Company's buildings, and the sheds for the Lehigh Valley Railroad at Jersey City. He is now completing a large contract at Snake Hill, N. J.

THE AMERICAN ROOFING COMPANY, St. Louis and Cincinnsti, are kept very busy. They report orders in one day aggregating several carloads, which were received from Texas, New Mexico, Colorado, Oregon and Washington. The demand for their American lathing, which was recently placed on the mar-ket, is steadlly increasing, and they are in receipt of a number of complimentary letters from the trade with regard to this lathing.

BERGER BROS. of Philadelphia report business booming and constantly increasing, requiring upward of 100 molders on their specialties in light malleable and gray iron castings, in the line of tinners' hardware, gutter hang-ers, pipe hooks and fasteners of every description. The late four story addition to their handsome new building being again too small, they have secured the five story building,

231 Arch street, specially for their | roohing supply department of gutter, pipe, sheet fron, corrugated iron and aiding, &c., together with all other bulky goods, for which their trade has been constantly increasing. The new building is already well stocked and so arranged that goods of this class can be received and shipped at the lowest cost and expense.

### C. C. Walworth.

C. C. Walworth, president of the Walworth Mfg. Company of Boston, Mass., dicd on November 22. For the last two years he has been in failing health, which has prevented his close

application to business.

Mr. Walworth was born in Canaan, N. H., on March 23, 1815. He received what was considered in that day a liberal education, and for a short time taught school in his uative town. For several years thereafter he lived in the West. Upon his return to the East, he was associated with his brother in the house of J. J. Walworth & Co., from which many of the leading engineers and steam fitters of this country have emanated. Heavy losses in Chicago, about the time of the fire, brought the concern into financial difficulties, from which it was rescued by Mr. Walworth, who formed a corporation under the name of the Walworth Mfg. Company. His efforts to place the new company upon a strong financial basis were ably accorded by the late E. C. Hammer, who eventually became its tressurer.

His numerous inventions, notably the multiple tapping machine, collapsing tap, die plate, manifold, pipe vise, and an automatic machine for cutting and threading pipe, as well as his improvements in steam traps, wrought iron radiators, wrenches and automatic sprinklers, placed the company in a atrong position to compete with other manufacturers in its line. His constructive ability was of constant and incalculable value to the corporation, and his inventions were the basis of the Malleable Iron Fittings Company of Branford, Conn., in which he had been for many years a director.

In 1881 the factory in Cambridge was found to be inadequate for the requirements of the business and the Crystal glass works at South Boston were purchased and a thoroughly eoulpped factory established by Mr.

Walworth.

Aside from his inventive genius and business asgacity, Mr. Walworth was a born organizer, and for 40 years his influence with the mcn, individually and collectively, was evinced by the fact that during various periods of discontent among the laboring classes no strike ever occurred in the works, pending troubles always having been averted by his warm hearted, judicious intercourse with all classes of his employees. He was ever ready to appreciate merit among those who worked for the company, and constantly incited the young men to use their brains in perfecting labor saving devices.

THE MAIL brings us a brown paper bag, tled with a cotton string and pasted to a sheet of cardboard. Above the bag a pair of turkey's feet are suggestively printed on the card, as though sticking out of the bag. On the card is the legend, "Don't miss the stuffing." Opening the bag, a very neat l

circular is found from the Ideal Boller Company, 36 Dearborn street, Chicago, wishing the reader an enjoyable Thanksgiving and incidentally ealling his attention to Ideal bollers. A wishbone is printed on the reverse side of the

### Trade Notes.

C. H PACKER has removed his pattern making shop to 107 Water street, Brldgeport, Conn, where he has in-creased facilities for making both wood and iron patterns.

THE BRIDGEPORT CRUCIBLE COM-PANY, Bridgeport, Conn., find a good demand for their crucibles for melting brass and other metals not only in their own State but in the nearby territory.

W. E. PLEADWELL has removed his nickel plating plant to 115 Kossuth atrest, Bridgeport, Conn., where he has increased facilities for turning out good

MERCHANT & Co., Incorporated, Philadelphia, have just filled an order from the Government for 20 of their 24 inch Star Ventilators for use on Government buildings in New York State. Their New York representative reports a very extensive and growing demand for these ventilators, as well as for their Spanish tiles in this section of the coun-

F. E. Myers & Co , Ashland, Ohio, manufacturers of pumps and hay tools, have one of the most complete factories in their line in the country. In their manufacturing department they have three rooms, 300 feet long and 52 feet wide, which they are now equipping with additional machinery and elevators, and in the most convenient and substantial manner, with a view of being able to produce goods of a high grade at a range of cost that will enable them to meet the views of the trade. The atorage rooms of this firm consist of three, 200 feet long and 50 feet wide. Their factory is large and roomy, and is equipped with latest pattern of 5 ton Collian cupola, so that the additions which have been made and the rearrangement of their factory throughout will give this firm what can be considered as an up-to-date manufacturing plant.

THE GOULDS MFG. COMPANY, Seneca Falls, N. Y, have in press a book which will be devoted entirely to efficient Power Pumps and their applications. In connection with these applications there will be a large number of sketches illustrating goods in operation for different services, &c. The book will be 61 inches long and 71 lnchcs wide, 96 pages, and handsomely bound, and will be replete, we are advised, with new goods and carry much information of value to engineers and pumpmen gencrally. The company are desirous of placing the book with all interested parties, and will be pleased to receive applications to add to their mailing lists. The book will be ready for distribution this month.

THE STAR COUPLER COMPANY, St. Louis, Mo., referring to the order re-cently secured by them for a supply of Star Couplers for the Marine Hospital, advise us that the Couplers were specified by the supervising architect of the United States. The Star Coupler Company are shipping goods to many parts of the United State, and recently filled a large order for a point in Canada.

### How Shall we Gauge Wire and Sheets?

BY CBERLIN SMITH,

It was Carlyie, if I remember aright, who said that the population of England was so many millions—mostly fools. However indignantly we may repudiate the descriptive portion of the dis-tinguished cynic's remarks as applied to the people of our mother country in general, we can scarce but admit the partial foolishness of that portion of the population who have been engaged at various times during a century past in the industry of inventing wire gauges. In America, too, we find that either heredity or example, or both, has caused a further development of this pernicious industry, and that the crowning absurdity of all its products has, not many months since, been indorsed and legalized by no fess eminent authorities than the two Houses of Congress and the President of the United States. The only comfort in connection with this ridiculous legislation is that it did not require any all night sessions or use of the cloture to pass it, and, furthermore, that few people will probably ever hear of itagain.

The measure referred to, which became the law of the land last year, creates a new United States Standard gauge for measuring iron and steel sheets. This gauge, instead of remedying the evils pertaining to the so-called wire gauges which have for so long afflicted a much enduring mechanical and commercial public, only intensifies them by adding a new set of arbitrary measurements to the numerous others already in use, by making these measurements more inexpressible in terms of any known unit, and by giving them names more complicated than usual. In Fig. 1 is quoted the text of this piece of interesting engineering literature (let us hope it will prove nothing more practi-

cal) in its entire enormity.

The pity of it all, in regard to the eslishment of the above mentioned law, is, firstly, that we should exist in such a crude state of civilization as for it to be possible for an intelligent set of iron manufacturers, followed by a Congressional committee, and afterward by a majority of the members of both Houses of Congress, and finally by the President himself, to establish such a wild and rambling set of figures as an improvement over the chaos that before existed. Such a state of mind among our legislators betokens but ill for sundry further public action which many engineers hope for, such as reformation in the Patent Office, the establishment of various scientific standards, the testing of materials upon a really comprehensive scale, &c. The second point for which we should grieve is that the Government has been put to the expense of passing this bill, and more especially of making complete sets of the new gauges for the use of our customs officers. This I suppose has been done to meet the law's requirements, but I have no certain knowledge thereof.

Criticising the law itself, sa given in full in Fig. 1, the chief point that strikes one is its entire superflulty, its mission being merely to add another to the already too numerous gauges which are based upon no scientific principle and are but poorly adapted to our practical wants. One of the chief points about this remarkable latest "standard" is that it is almost everything it should not be and fails to be almost everything of may afterward occur.

that it should be, utterly ignoring many attributes that should be embodied In a good gauge, some of which are as follows:

- 1. The popularity and universality which are necessary to secure definite-ness of measurement in the commercial world.
- 2. Suggestiveness, preferably by making its unit of measurement in harmony with some other well-known unit, as, for instance, the English inch or convenient fractions thereof.

3. A logically progressive scale, with the smaller numbers for the smaller sizes, rather than a retrogressive one.

A merely casual inspection of the table, Fig. 1, will show a non-fulfill-ment of those conditions. Viewing the first column, it will be seen that, in common with many other of the foolish gauges in use, the scale is retrogressive, having the smaller numbers for the larger sizes, which is manifestly an absurdity, as far as the use of the gauge is concerned. The only excuse for this arrangement that I know of is that the numbers are given in the order of the operations of the wire drawer, who originally adopted the ingenious and really somewhat scientific idea of calling his rolled iron rod No. 0; his wire after

An Act Establishing a Standard Gauge for Sheet and Plate Iron and Steel.

Be it cuacted by the Scuale and House of Representatives of the United States of America in Congress assembled. That for the purpose of securing uniformity the following is established as the only standard gauge for sheet and plate from and steel in the United States of America, namely:

Number of gauge.	in frac	Approxi- mate thickness in decimal parts of an meh.	Approximate thickness in millimeters.	Weight per square foot in ounces avoirdu- pois.	Weight per square foot in pounds avoirdu- pois.	per square foot	Weight per square meter in kilo- grams,	Weight per square meter in pounds avoir- dupois.
0000000	1-2 15-32	.5	12.7	320	20,00	9.072	97.65	215.28
000000	15-32	.46875	11.90625	300	18 75	8.505	91.55	201.82
00000	7-16	.4375	11.1125	280	17.50	7.983	85.44	188.37
0000	13-32	.40625	10.31875	260	16.25	7.371	79.33	174.91
000	3-8	.875	9.525	240	15.	6.801	73.24	161.46
00	11-32	34375	8.73125	220	13.75	6,237	67.13	148.00
	5-16	.2125	7.9375		10.40			133.55
ĭ	9-32	.28125	7.14375	200	12.50	5.67	61.03	
0				110	11.25	5.103	54.93	121.09
2 3	17-64	.265625	6.746875	170	10.625	4.819	51.88	114.37
ą.	1-4	.25	6.35	160	10.	4 536	48.82	107.64
4	15-61	,234375	5.953125	150	9.375	4.252	45.77	100 91
5	7-32	.21875	5 55625	140	8.75	3.969	42.72	94.18
0	13-64	.203125	5.159375	130	8.125	3 685	39.67	87.45
6 7 8	3-16	.1875	4.7625	120	7.5	3.402	36.62	80.72
8	11-64	.171875	4.365625	110	6.875	3.118	33.57	74.00
9	5-32	.15625	3.96875	100	6.25	2,835	30,52	67.27
10	9-64	.140625	3.571875	90	5.625	2.552 2,268	27.46	60,55
11	1-8	.125	3.175	80	5.	2,268	24.41	53,82
12	7-64	.109375	2.778125	70	4.375	1.984	21.36	47.09
13	3-32	.09375	2,38125	60	3.75	1.761	18.31	40,38
14	5-64	.078125	1.984375	50	3.125	1.417	15.26	83.64
15	9-128	.0703125	1.7859375	45	2.8125	1.276	13.73	30.27
16	1-16	,0625	1 5875	40	2.5	1.134	12.21	26.91
17	9-160	.05625	1.42875	36	2.25	1.021	10.99	24,22
18	1-20	.05	1.27	32	2.	.9072	9,765	21.53
19	7-160	.04375	1.11125	28	1.75	.7938	8.544	18.84
20	3-80	.0375	.9525	24	1.50	.6804	7.324	16.15
21	11-320	.034375	.873125	20	1.375	.6237	6.713	14.80
22	1-32	.03125	. 793750	22 20	1.25	.567	6.103	13.46
23	5320	.028125	.714375	18	1.125	.5103	5.493	12.11
24 25 26	1-40	.025	635	iĕ	i.	.4536	4.882	10.76
56	7-320	.021875	.555625	14	.875	.3969	4.272	9.42
98	3-160	.01875	47625	12	.75	.3402	3,662	8.07
27	11-640	.0171875	4365625	iĩ	.6875	.3119	3,357	7.40
28	1-64	.015625	.396875	iô	.625	2835	3.052	6.73
29	9-(40	.0140625	.3571875	9	.5625	.2551	2.746	6.05
30	1-880	.0125	.3175	8	.5	2268	2.441	5.88
31	7-640	.010937.5	2778125	2	.4375	.1984	2.136	4.71
32	13-1280	.0103373	.25796875	63-6	,40625	.1843	1.983	4.87
33	3-320	.009375	.238125	6			1.881	4.04
	11-1280	.009575	.238125 21828125		.375	.1701	1.678	3.70
34				51/2	.34375	.1559		3.36
35	5-640	.0078125	.1984375	5	.3125	.1417	1.5.6	3.03
36	9-1280	.00703125	.17859375	41/2	.28125	.1276	1.373	
37	17-2560	.06640625	.168671875	434	.265625	.1205	1.297	2.87
38	1-160	.00625	.15875	4	.25	.1134	1.221	2.69
1								

And on and after July 1, 1893, the same and no other shall be used in determining duties and taxes levied by the United States of America on sheet and plate iron and steel. But this act shall not be construed to increase dulies upon any articles which may be im-

But this act half not be construed to increase duffer upon any articles which may be imported.

Sec. 2. That the Secretary of the Treasury is authorized and required to prepare snituble standards in accordance herewith.

Sec. 3. That in the practical use and application of the standard gauge hereby established a variation of 2½ per cent, either way may be allowed.

Approved, March 3, 1893.

4. Uniformity of names or numbers, as, for instance, from unity upward, rather than mixing in a number of elphers having no meaning in themselves.

5. A uniform or uniformly increasing increment in each successive size.

6. Adaptibility to the convenient measurement of any substance, rather than with a limitation to a particular metal or a particular form thereof.

7. Simple and decimal fractions, rather than complicated vulgar fractions, when translated into the inch or other wellknown units.

8. Capacity for additional sizes, either smaller or larger than the original ones or interpolated between the same, as requirements at first unthought

once being pulled through the drawing plate, No. 1; after twice, No. 2; after thrice, No. 3, &c. This was all very well from his point of view, until he commenced to use larger rods, when he was obliged to lose sight of the beau-tiful numbering of his operations, or rather to accept a false numbering, and to adopt a group of naughts for his starting point. Furthermore, as different kinds of wire and different kinds and qualities of metal were afterward introduced, different gradations in drawing plates were necessary, and thence probably arose some of the various other gauges which are shown in the tables on the following pages. This was a sort of a natural evo-lution, based as usual upon ignorance of the future, and one which perhaps led the poor wire drawer to think life hardly worth living, as the numerous gauges adopted from time to time gradually got mixed up, and when gauges of this sort were used for sheets and bars, as well as for round wire, &c. Just why the makers of the new law in question should have followed this old system, and, if they did, why they should have assembled groups of ciphers up to seven in number for their starting point, instead of beginning with unity, is a conundrum too profound to be solved by the merely engineering brains

column, we find the same pleasant varlety in the character of the decimal fractions, some of which run to only nine places of figures, and which, moreover, appear to have no definite symmetry or co-relation to each other. In the fourth column, when translated into millimeters, we still, as might be expected, see no apparent law governing the vagaries of figures, which again in some cases extend to the billionth splace. The distances expressed thereby are about one twenty-fifth of one billionth linear inch, and only go to show

	В	C C	Đ	E	F	G	- 11	1	J	К	_ l.	M	N
Gauge number.	American, New Legal Stand- and.	Brown & Sharpe, or B. & S. "American Standard."	Washburn & Moen Mfg. Company.	G. W. Prentiss, Holyoke,	Trenton 1 rou Co., Trenton.	For music wire in America.	Edison, for copper wire.	For zine sheets in America.	For twist drills and steel rods,	For drill and pin rods.	For serews in America.	For sheet iron in America	For glass panes in America.
	500			-						-			_
0000000 00000 0000 0000 000 001 1 123 14 15 16 17 18 19 20 21 223 224 225 227 228 229 230 231 232 233 234 235 237 238 238 244 257 258 258 258 258 258 258 258 258 258 258	$\begin{array}{c} .500 \\ .464 \\ .476 \\ .373 \\ .496 \\ .373 \\ .496 \\ .373 \\ .496 \\ .373 \\ .496 \\ .4$	100 + 100 +	460 460 480 393 382 383 283 283 283 283 283 28	358 + 328 + 259 +	.070 .061 .052 +	$.034 + \\ .035 + \\ .037 +$	.054 +	.000 .010 .0112 .0114 .0116 .0118 .020 .0214 .0228 .032 .0336 .040 .045 .050 .055 .000 .070 .080 .125 .250 .1000	228 221 213 205 205 205 205 196 197 198 198 198 187 188 187 187 187 187 187 18	219 212 219 212 219 212 219 212 219 219	334 + + + 334 + + + 3363 + + + 400 + + 452 + + 465 + + 479 + + 551 + 584 + + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584 + 551 + 584	.002 + .046 + .038 + .031 + .025 .022 + .020 .418	021
47 48 49									078 + 076 073	.077 .075			
50							.223 +		070	.069			

The above values all in inches,

Fig. 2.

of this age and country. It is probable, however, that to the political brains at Washington the scale in question acems a very ingenious affair, and therefore scientific.

Looking at the second column, it will be seen that the sizes determined upon are approximate only when expressed in the beautiful vulgar fractions given, which, by the way, enjoy a series of different denominators, having the one good point of a capacity to be resolved into the convenient (?) common denominator of 2560. For the fact, however, that some of the sizes mentioned, as  $\frac{1}{1250}$ ,  $\frac{1}{2150}$ , &c., do not consist of more than four figures in the denominator, a long suffering public should be profoundly thankful. Inspecting the third

how accurate our Government measurements are becoming. We will merely imagine the future international complications that may arise from some dispute between a French importer and an American customs officer seeking a strict construction of the law, when they attempt to measure some sea rusted piece of sheet iron and cannot agree by a few parts of a billionth, on account of one patriotically preferring the fourth column and the other the third.

In the fifth column a little daylight begins to appear, for here the figures representing the weight per square foot, in avoirdupois ounces, appear to run in certain series of round numbers in the upper part of the column, fading away

into merely whose numbers in the middle part and branching out into fractional ones toward the end. The first eight of the-e siz's actually run in a diminishing series with a uniform decrement of 20 ounces. This figure suddenly changes to 10 for a time and then to 5, 4, 2, 1, 4 and 4 respectively. It will be noticed that these decrements are not in uniform groups of any sort, nor have they a uniform difference. As far as can be seen the whole arrangement of the new standard purports to be especially adapted to the convenience of the sellers of iron, which is concentrated in these groups of round numbers of ounces. As, however, sheet iron is not sold by the ounce, but usually by the pound or ton, it is difficult to see wherein this convenience consists, especially when we look at the sixth column and see that the number of pounds per square foot represented by the different gauge sizes nearly all run in fractions, which in some cases are expressed by six places of decimals!

An examination of the seventh, eighth and ninth columns will still show nothing but a dreary array of decimals, having no apparent systematic relation to each other, which obviously is only natural in translating any gauge founded upon pounds and alleged inches into French metrical measurements.

It is, of course, possible that the supe rior wisdom of the inventors of this new gauge may be exemplified by its users finding practical benefit in the ounces per souare foot feature above referred to, al. though the writer in his ignorance must confess to searching for it in vain. Even were this true, however, it must be remembered that such convenience would apply simply to black sheet iron, and that it would fail somewhat (at any rate to the extent of a few of the millionths of pounds expressed in the sixth column) when applied to sheet steel, whose spe cific gravity is slightly different. Still more would it fail as a practical working device if applied to galvanized iron or tin-plate, either of whose weights is quite perceptibly varied by the coating thereon.

When applied to copper, brass, zinc, nickel, silver, &c., these being ordinary commercial metals for which a gauge is frequently required, this weight per foot system utterly falls to the ground; and still further does a gauge of this kind prove itself entirely without sys-tem when applied to wire, not only when made of the other various metala in the market, but of iron itself. A careful study of this interesting law of the land caused the writer's wrath to wax hotter and hotter as the studying further progressed, until he had made notes for what he hoped would be a powerful philippic against its utter atrocity, not only from a strictly engineering point of view, but from the standpoint of ordinary business and common sense. Words, however, failed him and he was consoled only by the comforting fact that the text of the law, as given, with its accompanying table, would itself speak louder to the eye of the reader than would further mere words of criticism.

The table, Fig. 2, gives the dimensions in thousandtha of an inch of 13 different American gauges, whose nominal size or number is shown in column A. In Fig. 3 will be found a table giving in like manner the dimensions of 12 different foreign gauges, with the numbers in its column A. These numbers are not continued beyond 50, although in a few cases the gauges themselves extend to a distance which might too far trespass.

upon the editor's patience. From the same feeling of consideration for the editor I have not, in giving the inch values, carried out the decimals beyond three places of figures, although some of the gauge numbers run to millionths and even billionths of inches. In cases where these transcendental figures have been dropped a plus sign has been inserted, the third figure remaining normal, although the quantity would really have been better expressed in some cases (where followed by a figure larger than five) had such third figure been increased by one. For the practical purpose, bowever, of comparing the degrees of foolishness embodied, the three figures in question will doubtless be sufficiently accurate. The values given in the tables have been carefully compiled from a variety of sources, including both Enlish and American engineering handbooke, catalogues of gauge, screw, wire and sheet makers, &c. Since preparing this article I have seen the description of a chart gotten up by Dr. S. S. Wheeler, in which he has plotted a graphical comparison of all the principal gauges. I have not yet been fortunate enough to see a copy but, knowing the author, have no doubt that it is a valnable addition to the literature of this aubject.

An inspection of column A will show the absurdity (for any new gauge at any rate) of using groups of ciphers in advance of unity. The first group given can easily be remembered by thinking of Wordsworth's We-are-seven, Conway-dwelling, cottage-girl, and has the advantage of requiring counting to identify it—thus preventing undue haste. In practical use it is probably column B we see again our glorious national standard, as referred to upon a previous page. In column C we have the real "American gauge." so called pronounced number seven naught. In the real "American gauge," so called, which is largely used for measuring sheet brass and sometimes for brass The best thing that can be said of it is that it is the least bad of the whole lot, being scientifically designed so that its measurements will plot a parabolic curve with a uniform reduction of 11 per cent. between each con-secutive size. It is thus better proportioned to meet the generality of sizes required than are the other ones, but it has many of the faults common to them as, e. g., being retrogressive, starting with four naughts, being expressed in odd thousandths, and even millionths, of the English inch, &c. The notch gauge in actual use for messuring these values is a beautiful tool—as might be expected of a product of the eminent engineering firm who designed it and whose name it bears.
In columns D, E, F and G we have

In columna D, E, F and G we have other srbitrary standards, the first three of which seem to bear a close relation to each other. Possibly they may have, long ago, been evolved from some common source by the interesting copying process of measuring old worn out gauge notehes to make new ones by. The music wire gauge shows a decided change of tune, being the first with progressive numbers yet brought to our notice, though apparently being just as unsystematic as all the rest.

In column II we have another progressive gauge whose figures, regarding Tolog inch as a unit, are the respective square roots of 1000 times the gauge number in column A. This probably may be convenient to electricians, some of whom compare all cross sections of their wires by a special unit, the "mil," which is a denomination of a sort of a special "circular square measure," so

to speak. The particular gauge numbers selected, however, do not appear to run up with a uniformly increasing increment, as is shown by the series 3, 5, 8, 12, 15. &c. This gauge, as will be seen in the lower half of the column, advances by fives to 50 and goes beyond in the same way to 100; thence to 200 the advance is by tens, and after that by twenties up to 360.

In column I we have another progressive gauge which appears to be a

and Z .413 inch. The increments between are neither uniform nor uniformly increasing, but run in a sort of a wild-cat series somewhat thus: 4, 4, 4, 4, 7, 4, 5, 9, 5, 14, 7, 11, 7, &c., with various other numbers interpolated.

In column L we have a progressive gauge for measuring American acrews which seems to be founded upon nothing and to start nowhere, except that its increments are approximately .013 each. In column M we have a retro-

A	0	P	Q	R	8	Т	1J	v	À.	X	Y	z
Ė	English 1m- perial Legal Standard.	Brrmingham, or Stubs, or "English Standard."	Brmingham, for sheets not iron or steel	Birmingham, for iron sheets.	ancashire, one of Holtz- apffels.	a s	sh.	Needle wire in England.	Music wire in England.		French, Jauge de Limoges.	French, for galvabized iron.
	750	a of	8 8 8	æ <u>.</u>	Lanca shire one of Holtz apffels.	Warring to n or Rylands.	Old English for brass &c.	E-:	5-:	Whitworth Englis Standard.	8 28	, K
	oglish 1 perial Le Standard	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	# 5 E		50 €	2 × 2	id Englis for bras	E E	i i	7-5	T g	ت ت
Gauge ber.	la isi	2225	e a	irming for sheets.	anca s h one of I apffels.	E 52	80	으품	28	FAB	- 55	
9,1	ta	임기문학	rmin for s not steel	원이램	200	Ë	- 5 9	[ E G	18 A	늘믔찍	0.0	<u>_</u>
.g	E SX	± 0: №	= = = s	E - 2	<u> </u>	F 0	=	1 2 H	32	E E	20	- FRE
0000000	,500					.500						
(00000) (00000) (00000)	. 464					.468 + .437 + .406 +						
OHO K)	.432					.437 +						
(000)	.400	454				.406 +		****				
000	.372	_454 _425 _380 _349 _300				.375 .343 +						
00 0	.348	340				.326					015 +	
ĭ	.300	.310	.004	.312 +	.227	2010		.045		.01	.017 +	.023 +
1 2 3 4 5 6 7 8	.276 .252	. 284 . 259	.004	.312 + .281 + .250 - .234 + .218 + .203 + .187 + .171 + .156 +	.219 .209 .204	.274 .250 .229		.045 .042 .035		.002	015 + + 017 + 022 + 026 + 031 + 031 + 031 + 031 + 048 + 048 + 053 + 057 + 066 + 075 + 076 + 084 + 0134 + 084 + 0134 + 084 + 0134 + 084 + 0134 + 084 + 0134 + 084 + 0134 + 084 + 0134 + 084 + 0134 + 01	.023 + .027 + .031 + .035 + .039 + .043 + .047 + .055 + .059 + .069 + .078 + .078 + .986 + .088 + .0
a	.252	. 259	.008	.250	.209	.250		.035		.003	.026 +	.031 +
4	.232	. 238	.010 .012	.234 +	.204	.229		.032		.004	.031 +	.035 + .039 + .043 + .043 + .051 + .055 + .050 + .063 + .078 + .078 + .078 + .106 .118 .134 .154 .154 .153 .198 .213
8	.213 192	203	.013	.218 + .203 +	.201	.209		.028	612	.005	.030 +	-039 +
7	176	.203 .180	.015	.187 +	.195	.174		:023	.013 .019	.007	044 +	017 ±
š	. 160	.165	.018	.187 + .171 + .156 +	.193	159		020	.020	.008	.048 +	.051 +
8	144	.148	.019	.156 +	.191	1.146		.018	.020 .021	.009	.053 +	.055 +
10 11 12 13 14	.128 .1 <b>1</b> 6	.134	.024	.140 +	.190	1.133		.013	.022	.010	.057 +	.059 +
11	.116 104	.120	.029	.125 .112 +	.189 .185	.117 100		.014	023	.011	.066 +	.063 +
12	.092	.095	.036	.100	.180	.090		.013	.025 .026 +	012	075	079 1
11	080	.083	.041	.087 +	.177	.079	.083	.010	.028	.014	079 +	.086 +
15	079	.072	.047	.075	.175	.069	072	,009	.030	.015	1.084 +	094 +
16 17	.061	.072 .065 .058 .049 .042 .035 .032 .028 .025	.051	1.002 +	.174	.0e2 +	.083 072 .065	.009 .008 .007 .005 .004 .003 .002	.026 + .028 .030 .032 .033 + .035 .038 .042	.010 .011 .012 .013 .014 .015 .016 .017	.088 +	.106
17	.056 048 .040	.058	.057	.056 +	.169	.053	058 .049 .040 .035 .031 + .029 + .027 .025 .020 + .018 + .016 + .015 + .013 + .012 + .011 + .0	.007	-038 +	.017	.112	.118
18 19	048	049	.061	.050 .043 + .037 + .031 + .028 + .025 .023 + .020 + .018 + .017 + .015 + .013 +	.167	.047	040	004	033	.019	150	154
20	636	.035	.067	.037 +	.160 .157	0.46	.035	.003	.042	.020	177	.173
20 21 22 23 24 25 26 27 28 29 30 31	.032 .028	.032	072	.037 + .031 + .031 +	.157	.031 +	.031 +	.002			.201	.198
22	.028	.028	.074	+ 180.	.152 .150 .148 .146 .143 .141 .138 .131	.028	.029 +			. (100)	. 2222	213
23	.024	.025	.077	.028 +	110		.027				.241	.232
24	.020	.022	.095 .103 .113	.023 +	148		0.23			.024	.268	
26	018	.018	.103	.021 +	113		.020 +			.026		
27	.016 +	.016	.113	.020 +	.141		.018 +					
28	.014 +	.014	, 120	.020 + .018 + .017 + .015 +	.138		.016 +			.024		
29	013 +	.013	.124	1.017 +	.131		1.015 +			.030		
30 21	011 +	.013	133	1.014	1120		.015 +			.030		
32	.018 .016 + .014 + .013 + .012 + .011 + .010 +	.009	.143	.014 + .013 +	.118		.020 + .018 + .016 + .015 + .013 + .012 + .011 + .010 + .009 +			.032		***
32 33	.010 .003 +	003	.145		.111		010 +					
34	+ 000.	.007 .005 .004	.120 .124 .126 .133 .143 .145 .148 .158 .167		.111 .109 .107 .105		.009 +			.034		
35	008 + .007 +	.005	.158		.107		1009			.036		
36 37	0.007 + 0.006 +	.004	.194	•••••	.105		.UU +			.036		
38	.000 -				.100		.005 +			.038		
39	.005 +				.098		.005					
40	.004 + .004 +	<b></b>			.096		.001 +			.040		
41	.004 +				.102 .100 .098 .096 .025 .091 .086		.018 + .015 + .016 + .015 + .013 + .012 + .011 + .011 + .010 + .009006 + .006 + .005 + .005 + .001 + .005 + .0			.040		
42 43	.004 .003 +				.091							
43	.003 +				084					.045		
45	.002 +				.080					.045		
46	.002 + .002 +				.678							
47	.002				.080 .678 .076							
	.001 +				.073				***			
48	.001 T											
48 49	.001 + .001 +	.005			.070					.050		******

The above values all in inches.

Fig. 3.

little more systematic than some of the others, as the sizes are expressed in whole thousandths, and run with a not wholly crazy series of increments, though why near the end of the table the measurements should jump suddenly from ½ inch to 1 inch between two consecutive numbers, and this for measuring sheets as thin as zinc is usually made, is not quite comprehensible. Neither is it apparent why it starts where it does, or for that matter, why it goes on, or stops, or is.

In columns J and K we have two more arbitrary and retrogressive gauges with no special features of interest. They both continue onward in the same style to No. 60. The drill-rod gauge is thereafter continued further, as a sort of supplement, in a progressive form, with letters for names instead of numbers, A representing .234 inch

gressive gauge used by some of the large sheet iron manufacturers, but, like most of the others, the question why it did not die before it was born will remain one of the conundrums of the ages. Its comparatively slight difference from the Birmingham gauge in common use must make it extremely inconvenient in practice. The next gauge, in column N, is a progressive one, and is, as far as I know, the only one used by glass manufacturers. Its numbers, like several of the others, are not consecutive and certainly seem to skip around in a rather lively fashion. They appear to be without any particular definiteness, either in position or in relative measurements. In column O in the next table (Fig. 3) we have a retrogressive gauge which is, I believe, the only legally standardized one in England, it having been adopted by the

Board of Trade some years ago. seems to be founded upon the older gauges somewhat evened up, so to speak, but has, as far as I know, no special re-lation to anything else in heaven or on earth.

Column P represents the well-known Birmingham, or B. W. G., or Stubs, gauge, which is almost always referred to (by some or any or all of these names), in this country at least, when wire and iron and steel sheets are designated by number, although brass wire is sometimes, as before stated, measured by the Brown & Sharpe gauge. The gauge in question is often referred to in this country as "English standard," these words sometimes being stamped upon the gauges themselves, even in the factories of the best makers. This is evidently a misnomer, in view of the fact that England seems to have a dozen or so standards, one of them (not this one) being legalized, as before mentioned.

In columns Q, R, S, T, U, V and W we have another pestilent brood of gauges starting and ending nowhere in particular, all different, all retrogressive and all belonging apparently to the class of literature the reading of which might have made Carlyle so cynical. It will be noticed that no less than three of the gauges in this table enjoy the adjective "Birmingham," and the names of the others are rather uncertain some being derived from places and some from people. In gauge nomenclature it may be observed that, besides having one name for several different thirgs, the same thing has several names, as shown by more than one of the instances given. The Lancashire gauge, shown in column S, goes on beyond the figures tabulated to No. 80, which is .013 inch in size. It then has a supplementary progressive series named by letters from A to Z, the same as does the gauge already described in column K. After that, however, it indulges in a certain vagary by starting with No. A1, whose value is .420 inch, and onward alphabetically to No. H1, with a value of .494 inch.

In column X may be seen the first glimmer of common sense yet appearing as recorded by history in the industry of gauge inventing. Previously, everything had been allowed to grow up of itself in the most haphazard manner, but here we see the work of the practical mind of Sir Joseph Whitworth, who, as soon as he tackled the subject, hit upon the obvious and only sensible way, in a country using the English inch, of designating the small sizes in question. This was, of course, to express them in inches, like other measurements used in mechanical work, which he did while retaining the old word "number" as a prefix - probably with a view of catering to the prejudices of a gauge using people. This gauge in its complete form extends onward beyond the table to No. 100, increasing by fives; thence to 120 by tens; thence to 180 by fifteeus; thence to 300 by twenties; and thence to 500 by twenty-fives. This progression, it will be noticed, is not quite uniform in character, nor is the progression in the lower part of column X, where the increment of two suddenly changes to five beyond No. 40. This, however, may be forgiven, as a gauge of the kind in question is not limited to any particular numbers, it being perfectly logical to insert or omit, as may happen to be required for the particular work in hand. The system always remains the same, the sum expressed by the number agreeing with the quantity of thousandths of inches invoived. Just how much this gauge is used in England I do not know, but it is difficult to see why It has not, from its inherent merits. become popular both there and here.

In columns Y and Z we have two French gauges, both of which are progressive, but which have the usual non-relation to each other, or to any other principle, person or thing. It is but fair to state, however, that when expressed in millimeters (which are not given in this table, in the interests of unifor-mity) they do not have so much of the ragged-edge effect as appears in the The progression, though, is not very uniform, and the actual sizes are in two places of decimals—that is, in hundredths of a millimeter No. 0 being, in the Jauge de Limoges, .39 mm.; No. 5, .90 mm., &c.

In addition to the 25 gauges given in the tables there are a few odd ones, not so much used, which need not be given in detail. One of these is the French socalled millimeter gauge for iron rods, &c., which starts at No. P, equaling 5 mm.; followed by No. 1, 6 mm.; No. 2, 7 mm.; and thence onward, numerically, to No. 30, equaling 100 mm. The increments, however, are not uniform, being represented by 1 mm. up to No. 16, and then increasing by steps of various sizes. Another gauge, also French, is used for zinc sheets, and is almost like the zinc gauge given in column I, varying, however, in some of

its higher numbers.

Still another gauge is the German millimeter, so called. This is founded upon the same correct idea as is the Whitworth, No. 1 representing one mm, No. 2 two mm, No. 3 three mm, &c. Practically, however, its sizes would ohviously be too large and too far apart for ordinary thin sheet metals or wire. Besides those above cited there are a German, a French and an English screw gauge, and a German rivet gauge, about which I have obtained no information. Among the curiosities of gauge literature may be cited a hoop-iron gauge, about which I have read somewhere but have mislaid the specification. It, as I remember, playfully runs its numbers in reverse order part way through the scale, each having a small circle (like a degree mark) printed after it. It then duplicates these numbers ie natural order without the mark. Just what the sizes are I do not recollect, but practically hoop iron is, I believe, nowadays sold by the B. W. G. Another curiosity in the gauging business is to have no gauge at all, as is the case in measuring tin-plate, whose thickness is commercially known by such names as Taggers when anywhere from .004 inch to .008 inch; as IC from .008 inch to .014 inch; as IX from .013 inch to .017 inch; as IXX from .015 inch to .017 inch; as IXX from .015 inch to .019 inch, &c. It will be noticed that these numbers lap each other in most cases, so that the same sheet might be called by either of two of the names given. There is, however, no attempt to measure this thickness, either by makers or users, it being guessed at by weighing a box of plates and knowing the number of sheets therein, these usually varying individually to a considerable degree in any one box. sorting, which is generally necessary, is done by shaking each sheet flatwise and judging of the thickness by the stiffness and weight.

A supplementary set of sizes, lying between any of the gauge numbers of any of the 25 gauges mentioned, are in practical use, and are known by the following names. No. so and so easy, or bare, or acant, or loose, or light.

Also No. so and so full, or tight, or

heavy. Still another set of sizes are represented by these same adjectives with the word "rather" as a prefix; and still another set by the use of fractions. No. 151, &c., the 1 serving as a suffix to, and in some way modifying, a regufar gauge number. Furthermore, the people who use the above adjectives, with or without their qualifying adverb, and who use the fraction spoken of, do not generally make it very clear as to whether the scantness, or fullness, or increase expressed by the fraction, refers to the actual size of the gauge notch in question or to the numbers designated. Such indefiniteness in the case of retrogressive gauges may of course reverse the meaning intended. and therefore the occupation of receiving and filling orders for sheet metal, rods, nails, rivets and wire becomes a somewhat puzzling one to say the least. A customer merely states that it is to be No. so and so, qualified occasionally perhaps by the adjectives, &c., just mentioned, but says nothing about what gauge is meant, and how the adjectives and fractions are intended to be applied, nor whether he is depending upon duplicating material which has been measured by some old gauge with worn out notches. This is no fancy picture, but merely a portrayal of some of the misery daily occurring in commercial life.

A thorough discussion of some possibly successful and popular remedy for the evils indicated in this article, and a remedy, moreover, that should be international rather than merely American, might well require a volume to itself. In the limited space herein at command, therefore, I will only say that the subject is constantly attracting more and more interest among engineers and other scientific men, with a probable result of some definite standard methods of dealing with the measurements in question being settled upon in the not too far off future. Were it an Anglo American question only there would be but little difficulty in popularizing the Whitworth gauge, this being, I think, the only logical system where the English inch is the unit of measurement for larger sizes. Such gauges would be made not only for all varieties of sheet metals, wire, rods and bars; but for paper, cloth, leather, glass, &c., one system answering perfectly for all. The apparent unnecessary magnitude of a gauge comprising every 10 to lnch, say, from 1 to 1000, can be easily overcome by preparing notched gauges for particular trades and industries, contalning only such sizes as are in com-mon use therein. Each industry or group of industries needing about the same range could thus have as small and simple a gauge as possible, with all superfluous numbers omitted; and any gauge would absolutely agree with any other, whenever they happened to have

any numbers in common.

The real difficulty in this matter, however, fooms up when we attempt to contrive an international guage, which will be equally welcome to the peoples of the earth using the English inch and the French meter. It has been suggested that a gauge founded upon a hundredth of a millemeter as a unit, each number to express the quantity of these units embodied, would answer perfectly well for the whole world's use, and this view is advocated by a number of scientists in this country as well as abroad. Such a scheme has the disadvantage for England, America and Australia of not being easily translated into and compared with our standard measurements. It has, however, the advantage of having a unit of about 25 or inch, which for very small sizes is better than the 1000 inch unit of the Whitworth gauge. Whichever of these two most feasible schemes may be adopted, the commercial and engineering world will certainly be happier and better therefor. One strong point in favor of the general principle herein advocated is that any of the notched gauges (which form seems to be popularly demanded) founded thereupon can be easily ealibrated and kept in order by the ordinary micrometers such as are now in use in all machine shops, measuring by thousands up to 1 inch, or similar ones arranged for the metric system.

This very important subject is now being looked into by a committee of the American Society of Mechanical Engineers, which will probably co operate with committees from the other great national engineering societies. Interesting discussions have for some years past taken place in the various society conven-

right angles as seen in the cut, by which, the manufacturers claim, one turn is equal to three or four of the ordinary crank acrew as regards speed. The gauge ou the lower arm is solid and milled out, and runs on a milled bar constructed at a proper augle so that when the set screw is tightened the gauge comes to a right angle.

## Address to New York Trade School Students.

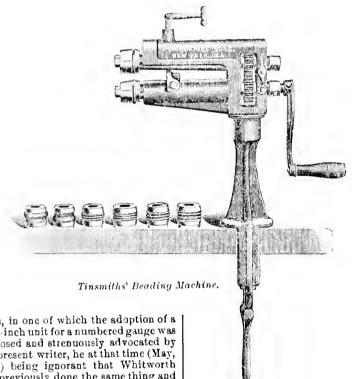
The New York Trade School was visited and inspected on Wednesday evening, November 21, by President R. Fulton Cutting of the Board of Trustees, who was accorded a warm reception by the students. Owing to unavoidable absence from the city, Mr. Cutting had been unable to visit the school earlier in the course. On being introduced by Superintendent H. V. Brill, he took the opportunity to address to the young

sable supplements to the skill science acquired at the school, Mr. Cutting continued: "Sometime ago 1 was talking with a man, a member of a large heating firm of this city. man came right up from the ranks him-He said he never would bid low for the sake of getting a job, but would ask a price at which he could afford to do the best possible work. He never felt quite satisfied with any piece of work unless, after it was done, it was a little bit better than the last one. Such a man cannot help but succeed, if industrious, faithful and honest. You will succeed if you have this sustaining quality and honesty. I bope, young men, you will stop and think a bit tol bope, young night on one point and that is, whether you are going to endeavor to put into your trade your highest skill. The kind of young fellows we want to send out are those who have got the spirit of true men in them and the determination to make their trade an honorable calling to which they can always point with satisfaction. We want our graduates to be not simply tradesmen but also tradesmen.

Owing to some mistake, on Friday of last week, the natural gas at Shelbyville, Ind., was given high pressure in the low pressure mains. At midnight it was discovered that more than 500 stoves and heaters in all parts of the town were melting under the intense heat and many buildings were igniting. The bells were rung and whistles sounded, arousing all the citizens who found themselves in the midst of a general fire. Happily, by the adoption of prompt fire extinguishing measures and by arresting the flow of natural gas, the fire was limited to the destruction of three dwelling houses.

Richard H. Edmonds of Baltimore, writing to the London Times on the progress of the Southern States in the past ten years, gives some striking illustrations. Fifteen years ago, he points out, the cotton seed was a waste product; now nearly 300 cotton seed oil mills are in operation, representing a capital of \$40 000,000. In 1880 the South mined 6,000,000 tons of coal, in 1893 the output was 28,000,000 tons. Ten years ago the agricultural, manufactured and mine products of the South were valued at about \$1,200,000,000 as year. They are now nearly \$2,000,000,000 and are annually increasing. The railroad mileage has been more than doubled and the traffic quadrupled. The iron and coal industries and the cotton mills have added nearly \$2,000,000,000,000 to the assessed value of Southern property, while its banking capital has more than doubled.

The United States consul general at Frankfurt reports to the State Department that American securities are now held in such distrust at that money center that not only are new invest-ments of all kinds uniformly refused because of their American origin, but large quantities of railway bonds and stocks which have been held there for years past have been recently returned and their proceeds invested in Prussian consols and other domestic securities. Mr. Mason believes that the existing American system of receiverships for bankrupt railroads, whereby the president or a director of the defaulting company is given the office of receiver, has done more than anything else to shake European confidence in American railroad securities.



tions, in one of which the adoption of a 1000 inch unit for a numbered gauge was proposed and strenuously advocated by the present writer, he at that time (May, 1889) being ignorant that Whitworth had previously done the same thing and also had put it in practical shape. Nobody appears to have ever seriously opposed this scheme, but there seems yet to be the inertia of a heavy mass of conservatism and indifference to overcome. Active forces have, however, been set in motion and it is earnestly to be hoped that before the twentieth century shall have dawned the civilized world will have forgotten its past incomprehensible foolishness in regard to the measuring of its smaller dimensions, and that some gauging system as simple and definite as it is universal will have been adopted as merely the embodiment of common sense applied to common things.

### Improved Beading Machine.

Jacob Brombacher's Sons, 30 Cliff street, New York, have put a new beader on the market, as here illustrated. The frame is cast in one piece instead of being in two parts, thus in creasing the strength of the machine. Further, the adjustment of the upper shaft is accomplished by means of a crank acrew in connection with a lever, which may be operated vertically or at

men some warm words of welcome, mingled with good advice and encouragement. Observing that he hoped they would follow in the steps of their predecessors in the school and make a record that would be creditable alike to themselves and the institution, he spoke in substance as follows: "You come here with both brains and hands, and these if rightly used will make you important factors in your country's progress. He who learns a trade puts a gap between himself and unskilled labor, for a man who has only his muscle to offer and does not know how to do anything requiring skill can only make, at best, an uncertain living. The fact is when you have commenced to learn a trade you have laid a foundation for the building of a successful and useful future. By directing your energies to the mastery of your trade you can make yourself a good workmanand first-class mechanics are always in demand—and in addition you have the opportunity, in the future, of enterlng the ranks of employers."

Inculcating the value and necessity of industry and application as indispen-

# STOVE TRADE NOTES.

Western Freight Rates on Stoves.

The Western stove manufacturers are working diligently to change the new railroad classification of stoves. They realize that it is a difficult task, almost as difficult as to induce Congress to repeal a law just after it has been enacted, but they hope to accomplish it by dint of perseverance. Over 40 milroad companies compose the association governed by the rules established by the Western Classification Committee, and amsjority of these companies must be favorably influenced by the manufacturers in order to secure the desired action. officials are being seen on the subject as rapidly as possible, but the co-operation of stove manufacturers generally is strongly needed in order to make the deepest impression as well as secure early action. Next week a meeting of manufacturers will be held at Chicago at which this subject will be considered and concerted action will be taken.

Stove manufacturers claim that stoves are among the most profitable freight carried by the railroads at their old rates. They are always crated, are neither exceptionally heavy nor bulky, but are easily handled by warehousemen, are largely moved in full carloads. and freight rates have always been fixed on a remunerative basis to the railroads. Further, the trade is a large and important one, affording a heavy tonnage to railroads, not only on the finished stoves, but also or the materials assembled for their manufacture. The prices of stoves have not been advanced to consumers, while manufecturers' costs have been increased by the demand latterly falling so much below the capacity of their foundries. Therefore, the proposition to increase the railroad profit in handling this class of freight by advancing the classification is received with a feeling of indlgnation. It is not regarded as fair treatment of a great business giving vast amounts of freight to railroad lines, nor considerate treatment of the masses of consumers, who cannot afford to pay more for stoves with their incomes curtailed as they have been for the past

The stove manufacturers of Illinois are particularly handicapped at this time by the railroad companies. A maximum freight rate was established for that State some ten years since by the State Warehouse and Railroad Commission which has never been changed. It was regarded as reasonably low then, but it is now high as compared with

rates ruling in other States. The Illinois railroads adopted the commission's rate and have it still in force. The consequence is that shipments originating outside the State are hauled to their destination in the State at lower rates per mile than the same roads charge on shipments from points in Illinols. The manufacturers of that State consequently find themselves as completely debarred from transacting business in some portions of their own commonwealth as if an imperial decree had been issued to that effect. The regulation of the railroads is provided for by law; but it is spasmodic and not continuous. State commissions should revise such maximum rates from time to time, making them conform to changing trade conditions, and they would then avoid the periodical upheav als of sentiment hostile to railroads which result in acvere measures ruinous to railroad investors. This is a time for prudent counsels in the boards of railroad managers, and their revisions of rates and classifications should be downword rather than upward, if they feel that some change must be made.

# Chat About New York Stove Business and the Bowery.

It was predicted years ago that the stove business would fill up Beekman atreet, but that thoroughfare is not much sought after at present. The J. L. Mott Iron Works and Abendroth have an extensive plumbing business and in the case of the former house aside from furnaces and ranges they don't trouble stoves. The Union Stove Works still atick to the "light" and are well equipped for the local trade.

The change in the retail dealers throughout the city has probably been more pronounced. The foreign element is rapidly monopolizing it. After the Americans came the Irich, in old times, but both are now superseded by Potca, Russians, Italians, Germans, &c.

The foreign population on the east side of the city is immense and they have to provide their own atoves; consequently, atove stores are quite numerous in that section. But the stoves are somewhat mixed with the household arrangements in many of the stores. A real first-class stove store is a rarity. Babics, Frankfurters, wire, bread, coffee pots are mixed up indiscriminately. But they are all happy; they enjoy themselves their way. Balla, parties, weddings, excursions are constantly occurring. Benefit societies, lodges, &c., are plentiful, and getting "on the lodge" is quite common among some of them.

The Bowery used to be an excellent business street, both for stoves and other goods, but not only has the stove business gone from there, but even the "business" so celebrated in the song of the streets of New York, east side, west side, were the daily scenes of snatches of these plays as the boys amused themselves. What do they see

"The Bowery," and, in fact, almost everything that has kept the street before the public so promiuently has disappeared or nearly so. Really, the Bowery is more respectable to-day and is freer from saloons than the majority of H. W. Monatrects of its magnitude. II. W. Mon-sus and M. Marks are the only stove atores on the whole street. The former is a son of the original Monsus, and the store has been there since way back hetween 1830 and 1840. Marks is near Grand street, and bought out Sellin many years ago. Sellin used to be a circus rider before he went into the stove business. Abendroths also kept on the same block many years ago. A big fur-niture trade was done there, but that has almost entirely gone from the street. and even the gin mills are scarce. doubt if any street of its importance has so few of them on it.

Nothing could be completely said about the Bowery without mentioning the old theater. It would make all the deceased Old Bowery Theater habitués, whether they frequented the pit or "nigger heaven" or strutted its famous boards, turn in their graves to see the audlences there now, without saying anything about the lots of other "jours" who used to be around New York and are scattered from Maine to California, and wherever you find them it is pretty certain they will entertain the new gen-eration with Old Bowery reminiscences whenever New York comes up. Such a crowd of foreigners fills it nightly, and "Nigger in the pit," "Hey Reilly," "Boots," "Histe that rsg," if shouted there now would mean nothing to the Smyrkoskels and Showlokies who fill the old seats. It would knock an Old Bowery boy silly to hear kofs-kies up where nigger heaven was exclaim when he saw Stofkie down in a quarter seat. But these people enjoy a performance and are wrapped up in it and are polite. The plays are worth witnessing for the acting, dreases, &c., though you do not understand the language and I have no doubt they are of guage, and I have no doubt they are of

a higher grade than many of our pretentious American play houses.

No greater contrast can be made on the theatrical taste of the Old Bowery day than to compare the style of amusement furnished now, especially tta effects upon the younger gen-The older régime gave Shakeeration. speare abundantly, without counting "Metamora," "Putnam" and other playa of that kindred. Minatrelsy and serenaders abounded, but they were darkeys pure and simple. You didn't find pure and simple. Thompson street mokes and plantation niggera doing acrobatic performances. They were what they represented themselves to be-essences of Old Virgiuny and city coons, as they were. The younger portion of New York was filled with the humor of these performances, and a one-ring circus that they could see each act and enjoy it; and instead of the stuff spread out now, "Mac-beth," "Damon and Pythias," "Ham-let," and other kindred plays were familiarized. The streets of New York, east side, west side. were the daily scenes now? Whole families are treated to the refuse of the Bowery variety pattern that has become tiresome to that crowd over there, as the performers as a rule have done them to death. Now they import the whole thing to the continuous performance shows, and the amount of rot dished out is disgusting. Yet the people howl at the old Bowery chestnuts that were freze years ago. But when performers and hirers of them are sunk so low that they have to get off stories of what "Pete in Heaven" said and done to them, they ought to be driven out of the business. gusting saloon jokes and knocksbouts are fine things for children to see and hear. There are some original perform ers acattered among these shows, and no doubt they could be made very entertaining, but not with the saloon rot stories and their attendant matter. If this be true then the Bowery is degenerated and they do not "do such things and say such things," as the samous song has it.

# The Leibrandt & McDowell Stove Company

of Philadelphia, Pa., favor us with a copy of their stove catalogue for 1895-96. It is a voluminous publication, consisting of 170 pages, measuring 9 x 111 inches, and bound in heavy paper covers. The central feature of the side title is a fac simile of the company's trade-mark, with lettering above and below, all printed in old gold upon a black ground. The cuts of stoves are of a good size, clearly showing the external features. The opening pages are devoted to terms, remarks to dealers and an illustrated description of some of the improvements incorporated in the company's goods. Under the head-ing of "Portable Ranges" attention is invited to the Victor, a five hole con-struction made with right or left hand oven and ornsmented in an artistic man ner; the Target, a massive six-hole stove, made in four sizes and the usual modifications; the Arcadian, offered in two sizes and adapted for either hard coal, soft coal or wood; the Jolly, a new construction, together with the Prompt, Reliance, Duval and Daisy. The following ten pages are given up to portable ranges with boller attach-ments, after which we find a number of pages devoted to semi-portable and brick ranges. The cook stoves are represented by the New Ironsides, a recent addition to the company's ss sortment, adapted for hard or soft coal or wood; the Farmer Girl, Our Friend, the Farmer Boy, the Prize and Rival. The heaters occupy something like 60 pages and cover a varied assortment, ranging from the rich and artistic parlor heater to the cheap laundry stove. Cellar furnaces constitute a chapter in which the llome, Victor, Solar and Victor Solar are illustrated. There are also shown the Combination Home heater, Victor portable heater, the Vesta, the Oval and the Ironsides. The closing chapter is given up to open grates and fire place heaters, of which an interesting assortment is presented. The catalogue is arranged with care and contains a general and alphabetically arranged index to facilitate reference.

RECENT ADVICES from the Northwest are to the effect that the Grand Rapids Vapor Stove Company of Grand Rapids, Mich., have secured through purchase the old felt boot factory next to the Bissell factory on Mill street. We understand that the consideration was \$20,000.

### James B. Taylor.

A familiar figure in the stove trade in New York City has been removed in the person of James B. Taylor, a confidentisl employee of the Richardson & Boynton Company, who died at his home in Brooklyn, on Monday morning, November 26, from hemorrhage of the stomach, at the age of 58 years. Mr. Taylor was brought up in the iron trade and up to 25 years ago was engaged in business in this city as an iron and metal broker. He then entered the employ of the Richardson & Boynton Company, 232 and 234 Water street, of which firm he was for a long period one of the most trusted employees. His knowledge of the trade was remarkably extensive, and his executive ability and sound judgment in business matters were extremely valuable to the firm, to whom his loss is a matter of deep regret. Mr. Taylor possessed the respect of a large circle of friends who honored him for his integrity and many encellent qualities. His health had for some time been in a very unsatisfactory condition, largely the result of overwork, producing nervous pros-tration and insomnia. He took three tration and insomnia. He took three trips to Europe by the advice of his physician within the last four years, returning from a prolonged tour on the Continent only a few months ago with his health apparently restored. A recurrence of his old trouble last month again sapped his strength, and eventually induced the attack which caused his death. The funeral services, which were held at his home, 12 Clinton place, Brooklyn, on Wednesday last, were attended by a large number of friends in the trade.

### ODD PLATES.

KRUSE & DEWENTER, Indianapolis, Ind., have been very busy in supplying the trade with their line of hot air furnaces this fall.

The Conover Fire Place Mfo. Company, with a capital of \$50 000, were chartered at Albany, N. Y., on November 24, to manufacture fire places, gratea, fenders, mantels, &c., in New York City. The directors are Alonzo E. Conover, Wm. E Conover, A. Edward Conover, Jr., Charles J. Coutter and Alex. R. Gulick of New York City.

A VERY BENEFICENT WORK is being carried on in Cleveland, Ohlo, in connection with the Bethel Associated Charitles of that city—namely, the gratuitous supplying of old cook and heating stoves to the very poor and On the first cold snap which needy. On the first cold snap which struck the district lately, the applications for this kind of relief became very numerous, and the superintendent of the Bethel Charitles was obliged to is sue a special appeal to the citizens for donations of old stoves for this purpose, which he stated would be highly appreclated. This is practical charity of a sort that might well be imitated in other large cities and which could not fail to meet with good support.

THE ST LOUIS GAS RADIATOR COM-PARY have been granted incorporation papers, at Springfield, Ill. The capital stock is \$100,000. Incorporators: J. W. Cowperthwait, Edgar W. Mc-Donald, R. L. Little, Clarence E. Blake and Wm. D. Tompkins.

THE MICHIGAN STOVE COMPANY of Detroit, Mich., are the assignees of a patent granted on November 15 to William J. Keep, covering the damper

of a stove or small auxillary door through which the air necessary for combustion is admitted to the fire. The opening covered by the small door or damper is so located that it may be utilized not only for the admission of air and the regulation of the draft, but also for the admission of a poker or shaker. The damper is operated by means of a cam, and may be locked open or closed.

THE CLEVELAND CO-OPERATIVE STOVE COMPANY, Cleveland, Ohio, are inviting bids for the reconstruction of the foundry building recently damaged by fire.

THE LANSING CO-OPERATIVE STOVE, FURNACE & FUEL COMPANY have recently been incorporated at Larsing, Mich., with a capital stock of \$5000. The incorporators include William May, Nelson A. Madden and William Ferris.

REPORTS from Troy were to the effect that Burdett, Smith & Co. of North Troy, N. Y., would close their works on Thanksgiving Day for the usual inventory and repairs.

THE MIDDLEBY OVEN MFG. COMPANY have recently been incorporated at Chicago, Ill., with a capital stock of \$25,000 for the manufacture of Baker's ovens, stoves, lamps &c. The incorporators are John I. Marshall, Howard L Smith and Arthur W. Underwood.

THE UNITED STATES FUEL COMPANY, Limited, of 19 Park place, New York City, and factory at Binghamton; N.Y., made an assignment last week to Henry Worms. The company were organized in 1891 under the laws of the State of West Virginia with a capital stock of \$125,000. They manufactured a prepared fuel known as Sestalit, as well as stoves designed for its use. The failure is attributed to general depression in business.

GEORGE W. McFadden, manager of the Auburn Stove Foundry Company, Auburn, Maine, has been making a short tour in the interests of his company, and in a recent interview stated that the stove and furnace business has been very good the past season. The company have built up an especially large trade in Norway, Maine, which was one of the places visited by Mr. McFadden.

THE LATEST REMINDER from the Gobeille Pattern Company, Cleveland, Ohio, is sent to the trade under date of November 20, asking that they be permitted to make sketches and give prices on patterns for next season, adding that it will cost nothing and the trade will thus have an opportunity of seeing the work of the best designers, artists and mechanical experts. This is the matter of the announcement, but it would not do to pass it by without reference to the manner in which it is made, as all the circulars of the Gobeille Pattern Company are distinguished by some feature of attractiveness. This last circular is printed in brown ink on a small sheet of parchment attached to a card backing with a silk cord.

CHARLES S. MULLICA, who has conducted the iron foundry business in Salem, N. J., for more than 48 years, has opened a new place just over the Covered Bridge. The building is 40 x 50 feet and is thoroughly equipped with machinery, flasks and other appliances necessary for the casting of all parts of machinery, stove fittings, &c. There are in the building two furnaces, one with a capacity for melting 2 tons of iron, the other 5 tons of iron.

FOLLOWING OUT the custom pursued by them for several years, the Barstow Stove Company of Providence, R. I., distributed to their friends in the trade just before Thanksgiving a unique card, designed by Livermore & Knight Company of the city named. On the address side of the card, in the upper right hand corner, is the picture of a wishbone of a Thanksgiving fowl tied with ribbon. On the other side is pasted a small paper bag tied with a string, and so placed as to show above it the feet and claws of a turkey, the whole being managed in such a manner as to create the impression that the legs are sticking out of the mouth of the bag. Close beside this is the inscription, "Don't miss the stuffing." Opening Opening the bag we find a Thanksgiving greeting in the way of an illustrated circular calling attention to the goods and speciaities of the company. The wish is expressed that the day may be bright, the turkey done to a turn and that the recipient may have much to be thankful for. Then follows the warning not to forget the stuiling and that to our commercial success we all owe many of the good things of life. The company state that they feel they have occasion to be thankful in this generally dull year of business for the fine trade they have experienced in their Bay State ranges, furnacea and parlor stoves.

THE TWIN BURNER VAPOR STOVE COMPANY are sending out their catalogue showing the line of stoves made by them for the coming sesson. trations are given of the Twin Burner process cabinet with two top burners and step attachment, and also without the step attachment. Following these are three and two burner Twin Burner process stove, with and without low step. Complete lines of high junior stoves with and without step attachment and cheap junior stoves are also given. The catalogues conclude with instructions how to operate gasoline atoves and a list of stove furniture, gasoline torches,

THE Cotton Beit and Iron Mountain Excursion to points in Texas last week was attended by a large number of representative business men from St. Louis. L D Vogel, assistant secretary of the Excelsior Mfg. Company, was among the number and gives The Metal Worker the following account of his observations. "A week's respite from work makes a great difference in a man who generally has his time pretty well occupied, and my trip with the merchants and manufacturers of St. Louis to Texas and Arkansas points has refreshed me. hustlers' that I had the honor of accompanying from St. Louis and those I met in Texas and Arkansas have in used new life into me and made me absolutely eager for work. Honeat Indian, I'm not joking, for it is impossible to be in auch company without getting your appetite for business sharpened. manner in which we were treated by the people of the two States was simply beyond criticism. Nothing was too good or too much for us; and if you think that those good people do not know how to entertain, you miss it. We were gone a week and had everything to our heart's content except sleep. What particularly impressed me from a business view was the high char acter and intelligence of the stove and hardware dealers and the admirable establishments they conduct. I took pride in the very large representation of the Charter Oak in all pieces we visited and was glad to learn that dealers read and appreciate 'trade papers,' yours

among them. In fact the trip from the moment we left St. Louis to our return was perfection in management and de-

### The Open Fire Place, Past and Present.-III.

### The Teate Principle,

Mr. Teale recommends that the gridiron should be made with narrow slits. undoubtedly an advantage, preventing cinders from falling through, and thus being wasted. Others object to the slits when the coal is not of a first-rate quality, but for a model fire place we should at least calculate upon good fuel. Instead of building the gridiron into the wall in the usual way, it is better to have it made to stand on feet and placed independently in the opening, thus enabling it to be renewed at any time without the aid of the brickinger. grate embodying the foregoing features is generally known as the Teale principie, doubtless as a result of Mr. Teale's able lectures on the sul ject in which he so earnestly called attention to the neglected doctrines of Count Rumford and various improvements from other sources. To this improved form of grate has been added a movable canopy by means of which the combustion of fuel can to a greater extent be controlled. It also forms a register door, with which the flue can be shut off at will. In addition to these advantages, the canopy being removable gives the bricklayer greater freedom when fixing, and with the lean over back it is invaluable, because its removal gives free access to the flue for aweeping purposes. The Mariborough grate embodies nearly all the features I have mentioned. a practical point of view I think it is the best form of grate made; but there are certain minor details about the conatruction and design which can, and I hope soon will, he remedied. As practical proof is at all times preferable to theory, I give an epitome of a trial I made with a similar grate that I have had fixed in my own house. The fire was kept burning continously for over 36 hours, during which time it was mended only six times, and received no other attention, the night stoking being made with a lump of coal weighing 12 pounds, backed up with 3 pounds of fine slack. This was put on at 10 o'clock, and after hurning slowly all night, the remains of the lump was broken up at 8 next morning, and fresh fuel added at 9. The thermometer registered an average of 75° in a .room of 2000 cubic feet; it was placed in the center of the room in the direct rays of the fire. The total amount of fuel used was 56 pounds of coal and 14 pounds of fine slack, making 70 pounds in all, the cost of which, at 16 shillings 6 pence per ton, was 61 pence. The total waste in ashes was less than 11 pounds. The whole of these ashes fell under the grate out of sight, so that during the whole period of this trial the hearth did not have to be swept or attended to in any way. The grate retained so much heat afterward that at the end of 46 bours - i. e., 13 hours after last fuel was added-the general temperature of the room was 54°, while in the grate itself a thermometer registered 98°; the cutside temperature at that time was below freezing. The value of this retaining power cannot be too highly esteemed, because a room in daily use need never become very low in temperature, even in the severest weather, and with a hot grate in a morning the new fire is rapidly kindled, and there is no fear of getting a chili at breakfast. In the sick room it la also of the greatest value, as the lasting nature of the fire enables one, with litt'e attention, to keep a continuous fire and an even tempera ure for an indefinite period.

#### Furnishings of the Fire Place,

Before concluding my paper, 1 thick it well to make a few remarks concerning the furn'shings of the fire place. Firstly, there is the all important tel piece. Whatever material this may be made in, the design should be controlled by the material, and that design which is the most readily wrought and easiest of sound construction in the material used is the best design, provided it fulfills its purpose as well. three materials most used for making our mantels are stone, iron and wood, each of which has its own special advantages. Of the first of these I shall say little, beyond regieting the lamentable want of design in most of the marble and enamel slate chimney pieces offered for general use. The next in acquence fs iron, and this material, where practical economy is concerned, has proved itself to possess immense capabilities for small chimney pieces; and since a chimney piece should be designed not to come in contact with the rays of a fire more than can be avoided, its conducting power does not decrease its value for the purpose named; but for larger and more important fire places it is much icas suita-The uncontrollable vagaries of cast iron in cooling after being poured moiten into the mold render its production in anything like perfection inconsistent with the same economy it possesses when used for smaller work. We either have to put up with twisted shelves and jambs, miters that do not miter, and other joints that do not fit, or else so much labor has to be spent upon fitting the parts together that it ceases to possess ita fullest economy. On the other hand, it is almost indestructible when fairly used, all its defects being apparent from the day of its birth, while stone and wood ahow deterioration in wear as time progresses. For offices and school rooms it is invaluable; it is vain for the office boy or scholar to try his knife on its surface; his desire to hand down his name carved on its frieze to future generations is fruitless. The last of the materials named is wood, and this requires more careful consideration For domestic purthan the others. pores it is unquestionably the most in harmony with our other furnishinge, and it is this fact that accounts for its present popularity, but its inconsiderate use sooner or later will prejudice its continuance in favor. The conditions necessary to the satisfactory use of wood for the chimney piece are numerous, the more important of which are: t. The chimney piece should not come in centact directly or indirectly with any of the metal work used in constructing the fire place, but be reparated from it by stone or tiles, or both. 2. It should be so designed that, as far as possible, no part of it should come within the direct rays of the fire. 3. It should be made of we is easoned timber, and when made not be delivered into the building till it is acutally wanted. It is not unusual to be asked to deliver into a damp building, the windows of which are unglezed and the doors unhung; the consequence is the porea of the wood absorb the moisture in the atmosphere, and if ili consequences ensue the maker is blamed for using unsessoned timber.

there are things to be observed in connection with fixing the wood chimney

### The Wooden Chlmney Plece.

The damp walls, which are favorable to the proper fixing of stone, are most injurious to the wood work. They are frequently fixed on a wall recking with moisture, sometimes set into the plaster, and the plaster carefully made good all round, making for the time being a neat job; but immediately they are fixed an immense fire is lighted in the grate, which drives the moisture out of the brick work, and the hermetically scaled chimney piece forms a veritable steam chest at the back till the joids open from twisting and the condensed water oczes through and forms a little stream upon the surface. This is no exaggeration, but a statement of simple facts. There is nothing worse for wood work than steam. It is the power used to bend it when so required; wood work cannot absorb moisture and be rapidly dried again without very great risk of warping and unequal shrinkage. As the fixing of a wood chimney piece is extremely simple and inexpensive, the safest method is to complete fixing the whole fire place, including the chimney piece, and when this is done the actual wood work should be unserewed from its plugs and placed elsewhere till a few fires have extracted the moisture from the brick work\*, then it can be replaced; the cost of such extra work is trifling as compared with the annoyance it 38 Ves . Special care should be taken in plastering the chimney breast to avoid unevenness, it being in all cases undesirable to let the wood work of a fire place into the plaster, entailing as it does making good round it, thus leaving no escape for damp. An additional precaution should be taken by painting the backs of wood chimney pieces. This renders them less liable to absorb any moisture that may be left on the brick work. Even if the general walls have been built some time and the house is fairly dry, the new brick work filling up the arch above the grate is quite sufficient to do great mischief. It is quite surprising the quantity of water a brick is capable of absorbing, a very large percentage of which must escape in vapor. Another smaller matter l have adopted in the construction of wood chimney pieces to facilitate the fixing of them is to fix a strip of wood 1 or a inch thick round the opening of the interiors; then any slight inequality in the projection of the grate tiles and marble work, when compared with chimney piece, is easily rectified by re-ducing this strip. It has a second advantage. Wood work is always liable to shrinkage while it retairs its natural properties. If shrinkage to any extent takes place and the man-tel is forced thereby from the wall, by reducing this strip-which is an easy matter—the mantel can be made to go back into its original position. This is not a contingency that would often happen when other conditions are observed, but it is a small safeguard worth taking, an insurance against accidents at an accidental rate of premium. When overmantels with mirrors are added even more care should be used. and if the mantel and overmantel are made separately, it is well, if practicable, not to deliver the overmantel until the other furniture is taken in, otherwise the damp is liable to destroy the quicksilver of the mirrors. Lastly.

when the chimney pieco is to be made of wood it should be ordered as soon as possible. The longer the work is in the shops before it is finished and pol-ished the less chance there is of unpleasantness after fixing. To plane some woods means to render them capable of fresh twisting and shrinkage, however dry they may appear to be; oak espeeially is liable to twist after being worked, although it may have been in the log 100 years. It is therefore best to order in ample time, thus giving it a chance to show its inclinations before being finally fitted together. The disregard of these conditions in the use of wood chimney pieces will be certain, sooner or later, to bring them into diseredit, and thus a more suitable fitment may fall into disuse from no demerit of its own, but in consequence of the want of a little thought and care by those responsible for its fixing. It is usual to fix marble or slate strips as a protection inside the openings of a wood chimney piece. These are more generally made to show about 2 inches, but it would be much better if they were made to be more of a feature in the building of a fire place, and a wider margin shown especially in the frieze, by which means the wood work, and particularly the shelf, would be more easily protected from the direct rays of the fire. Marble or stone strips should always be used in this way when there are no tiles, also when the tiles are fixed to form splayed cheeks or a recessed fire place, but they may be safely dispensed with when the tiles are fixed in a line with the grate. The tiles then answer all the purposes the marble is intended for.

### Recessed vs. Straight Fire Places.

Whether a recessed fire place or a straight one is best must be a matter of opinion, but there can be little doubt that the more forward a fire place is built the greater is its heating power in the room. In the larger fire places tile cheeks should be considered a necessity; not tiles in an outer frame work of iron, which method of treatment dwarfs the fire place and renders it insignificant, but either built in separately or in slabs. In the recessed fire places they form good reflectors for the rays of heat discharged upon them, in addition to their protective and ornamental merits. The tile hearth is equally good in this respect; it cannot be too strongly recommended, equally on account of its cleanliness. With regard to the tiles themselves, unless really good, artistic, hand painted Perslan or luster tiles can be used, plain glazed enamels in suitable colorings will be found best for all purposes of the fire place. For fenders and necessary fire irons, very good effects may be obtained by using the smith's work, but these should be kept simple and for use only; the elaborate brass work is at once a useless expenditure and an exhibition of bad taste. Why a man wishes to make his hearth look like a brass founder's showcase is an unsolved problem, and the panic that ensues if one inadvertently uses one of these elaborate ornaments to mend the fire with proves conclusively that they are totally out of place, and yet they not infrequently are as costly as the fire place itself. I am afraid I have made a long story, but the fire place is worthy of our most careful attention. Of all necessary fittings in our homes there is none to rank with it in importance; it is the very center upon which our home life hinges. Few of us would be willing to adopt from choice any other method of warming our living rooms, and many of us would

gladly go back, were it practicable, to the log fires of our forefathers, but failing this, the modern fire place is dear to us as an institution, and rightly If it is not so economical in fuel as other methods of warming it is the most healthy, and that, after all, is the greatest of all practical economy. Then how it appeals to our sentiments! What welcome more cheerful than the rich, warm glow of a bright fireside in months of wintry blasts? How it cheers us mentally and bodily—how we thaw under its influence! What circle so genial as the fireside coteriewho has not felt its spell? What tales have been told in its fantastic light! What memories of childhood's happy hours! Could the old stories have had the same fascination if told elsewhere than in the firelight's ruddy glow? Who has not lived over again some pleasant past while gazing into its glowing caverns? What stimulant so effective to the imagination as the dear old fire place! What fantasies in its forked tongues of living flame, in its curling smoke and its weird embers! How accommodating to our every mood! How glad with us in our joyous moments! How sympathetic in our times of sadness! And yet with all its glorious accordations how it in our times of sadness! And yet with all its glorious associations, how it is neglected. The most precious of all our boughold institution. is neglected. The most precious of all our household institutions, the one that repays more than all others, is but too often treated with scant consideration. They who will admit the justice of my panegyric in the hour of temptation think anything good enough for this shrine of shrines. Men who will spend freely on other furnishings, which they may look at without seeing once or twice a day, will deem it an extravagance to spend proportionately on the fire place before which they will sit and contemplate for hours, and which would return more interest than all the others put together if treated in the same generous spirlt. But with all this neglect the fire god triumphs and gives us some gladness, though he be buried in cast iron, which does its best to absorb his generous warmth. Still the noble god struggles gallantly, and does his best to warm our bodies and glad-den our hearts. But how much easier task when assisted! How the flames dance and the embers glow in a sultable home! How they reflect their magnificence in the glaze and luster of the tiles when offered no obstruction in their lighter easings, and how the whole forms one grand picture when framed with a noble yet simple mantel adorned (and not vulgarized) by the craftman's skillful hand !

W. E. MELLINGER, well known in the Western heating trade, on the 30th ult, ceased his connection as heating engineer with the Baker & Smith Com-pany, 193 Van Buren street, Chicago, with whom he had been pleasantly assoclated for nearly ten years. He removes to Louisville, Ky., to take up the duties of his new position as president and manager of the Southern Heating Company.

Several of the transatlantic steamship companies have recently issued strict regulations forbidding their agents in Europe to book as passengers for the United States certain undesirable classes of emigrants, including paupers, deaf and infirm persons, persons under contract, assisted emigrants, persons who within a year have been convicted of crime and anarchis's.

<sup>\*</sup> Fires should not be lighted in grates the day they are fixed, as such a practice destroys the property of the cement used.

# TRADE REPORT.

### The Iron Market.

We are in the position to make the official announcement that an arrangement has been arrived at by the Steel Rail manufacturers for the year They have decided to lower the price \$2 \$\overline{2}\$ ton on all Rails 45 lb per yard and upward, thus making the price \$22 East and \$23 West.

It is of course too early to judge what effect this action will have up on buyers, since the new quotations have only been out a few days. In the trade generally opinions are divided. It is urged on the one hand that requirements must nec-essarily be heavier this year than they have been, even when due consideration is given to the wretched financial con dition of many great systems. Others insist that the necessity for the strictest economy will keep even strong buyers out of the market, and that there is no inducement to them to give out winter work.

The Iron trade is more particularly interested in the matter so far as it bears upon the general business for the months intervening before spring, the feeling being that then the trade can take care of itself without any reference to the large Rail concerns.

In the Foundry Pig Iron trade there is more activity in Western centers, but apparently at the expense of prices, which are irregular. Makers do not seem to have much confidence in the first quarter of next year, since they are willing enough to contract at present prices for that period.

Pig Iron.-New York market has been very quiet, with a weakening tendency on the part of some Southern makers. Some efforts to develop our export trade lately have been rendered futile by lately have been rendered futile by high ocean freights. We quote standard brands \$12.25 @ \$12.50 for No. 1; \$11 @ \$12 for No. 2; \$10.50 @ \$11 for No. 2 Plain, at tidewater. Southern Iron, same delivery, \$11.50 @ \$12 for No. 1; \$10.50 @ \$11.25 for No. 2; \$10.25 @ \$10.75 for No. 3; \$10.50 @ \$10.75 for No. 2 Soft, and \$10.75 @ \$11 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$10 @ \$10.40. @ \$10.40.

The demand for Pig Iron in the Philadelphia market is quite active, considering the season, and tardiness in making deliveries is a matter of general complaint among consumers. Furnsces are evidently carrying very little Iron, although they are entering orders for 1895 delivery for almost all that a buyer is willing to engage at current quotations. In some cases the opportunity is accepted for deliveries running for a period extending three or four months, but it cannot be said that there is any general disposition to abandon the policy of hand-to-mouth buying, especially while prices continue as they are to-day—casy, if not weak. General quotations for Philadelphia and nearby points are about as delphia and nearby points are about as follows, with a reduction of 25¢ @ 30¢ for such deliveries as Baltimore, York,

NY of 1	SAFF			11410	1114	4 6 4 5 1 1
			 			4 1 - 4

Advices from Chicago intimate that Local Coke Iron has had another week of much better business than had been anticipated. The largest order placed was one of 2000 tors, but numerous other contracts were made for 200 to 500 tons, while carload orders were plentiful. Shipments are extra-ordinarily good; hardly a case exists in which deliveries are not running ahead of the monthly quantity still ulated. Foundry Iron is not any dearer, but indications appear to favor an upward movement in Bessemer. Southern Iron is in only moderate demand with some irregularity in prices. The large companies are very firm, but the smaller concerns are making concessions in order to secure orders. An increased business is reported in Lake Superior Charcoal, more tonnage now being booked than for a long time. Orders are not large, but their number is stesdily growing. Quotations are given as follows for eash.

do Iono na tor case			
Lake Superior Charcoa	\$13,00		\$13.50
Local Coke Foundry, No. 1.	10/12/9		10 25
Local Coke Foundry. No. ?	9,50	@	9.75
Local Coke Foundry No. 8.	9,25	0	9.5)
Local Scotch	16,25	0	11.00
Ohio Strong Softeners No. 1	12.50	Ø	13.50
Southern Silvery, No. 1	11.50	0	11.75
Southern Silvery, No. 2	11 25	0	-11,50
Southern Coke, No. 2	10.25	0	10.00
Southern Coke, No. 3	9.75	0	10.25
Southern, No. 1. Soft	10.25	0	10,50
Sputhern, No. 2, Soft	10,00	0	10.25
Alabama Car Wheel	17.50	6	18,00
Jackson County Slivery	15.50	C)	16.00
Other Ohio Silvery	14.25	0	14.50
			3

Reports are going of some large sales of Bessemer Pig Iron in the Pittsburgh district, for delivery next year, and some of the Valley furnaces have sold up their entire product to April 1, 1895. The demand for Foundry Irons is light and prices are weak. No. 1 Foundry is said to have been sold down to \$11, Pittsburgh. Quotations are as follows:

From the Cincinnati market an incressed volume of business in Southern Coke Iron during the past week is reported, several round lots, aggregating 12,000 tons, have been sold at about the range of prices indicated in the table. No. 3 Foundry has been especially firm, but No. 2 Foundry, being in relatively larger supply, has not been so well sustained. There has been apparently a general increase, though not large in any special instance, in the melting of Iron by both foun-dries and mills. The large purchases, however, have been mainly by mills of No. 2 Foundry and No. 1 Soft. One sale of 5000 tons and four additional sales of 1000 tons each are reported, as well as several lots of 200 to 250 tons each. The 5000-ton lot was sold to a large Eastern mill, 1000 tons of the Southern Iron was sold in the West and 1000 tons Northern Iron to Pittsburgh consumers. While the general market has been firm and hardening there have been instances where quotations on certain grades have be shaded. Quotations are as fo lows:

Ohlo Soft Stone Coal, No. 2 14 00 © 14 50 Lake Superior Coke, No. 1 12.00 © 12.50 Lake Superior Coke, No. 2 11.00 © 12.50 Hanging Rock Charcoal, No. 1 15.00 © 16.00 Hanging Rock Charcoal, No. 2 15.00 © 16.00 Tennessee Charcoal, No. 1 13.00 © 13.50 Tennessee Charcoal, No. 2 12.00 0 15.50 © 16.00 Ressumer. 11.05 © 12.00 0 15.50 Ressumer. 11.05 © 12.00 0 15.50 Etake Superior Car Wheel and Malleable. 14.25 © 14.25 © 14.75 A 15.10 United Page 18.00 18.00 Etake Superior Car Wheel and Malleable. 14.25 © 14.75 A 15.10 United Page 18.00 Structure Toward Page 18.00

At St. Louis the Pig Iron situation remains practically unchanged. There are no new contracts being made, for the reasen that most consumers are anxious to work their stock down to the lowest possible point, so that they will be able to wind up the year without carrying over heavy stocks of Irou. As heretofore, the demand runs largely to carload orders, with an occasional 200 ton lot. Prices are unchanged, and in the absence of any large inquiry are well maintained. We quote as follows for cash, f.o.b. cars St. Louis :

### Metal Market.

Pig Tin .- Early in the week selling pressure was even more severe than it was during the preceding week, and wholesale prices underwent a further considerable decline. On Wednesday, however, the market gained some renewed strength under the influence of a rise in London prices. Quite liberal purchases were made at bottom figures by consumers, but the jobbing demand has been quite moderate. Prices for small lots of Straits from store are the same as those quoted last week—namely, 16¢ @ 16½¢ to lb.

Copper.-The market has shown semewhat firmer tone and rather more animation, the result chiefly of rumors that the leading producers have at last come to an agreement in the matter of restricting production the coming year. Merchants who are in a position to know state positively, however, that ro agreement of the kind has been effected. and also that there is no likelihood of any being made. The consumptive demand has been only fair, and prices for small quantities show no change, Lake Ingot being quoted by jobbers at about 10¼¢ per lb.

Sheet Copper.—Irquiry is slow, and purchasing by consumers is limited to moderate quantities for immediate use. The basis of prices for small lots of Sheet Copper is 15¢ per Il net.

Pig Lead. - Only a very slight movement in prices has taken place, but the market has weakened somewhat in tone, under the influence of freer offering here and extreme indifference on the part of buyers. For small lots from store, the ruling price is  $3\frac{1}{2}\sqrt[4]{6}$   $3\frac{3}{2}\sqrt[4]{6}$  lb. Manufactured Lead is in very limited demand.

Solder.-The demand is fair. Prices for small lots have been marked down to 110 @ 1110 for 1 and 1 guaranteed; and 90 @ 910 for No. 1. Speiter.—The market is positively flat. Spelter is and has for some time been the dullest metal in the market. Orders are invariably for only moderate quantities, and business all round makes a very modest showing. Western in small parcels fetches 4% 7 lb.

Antimony—The market has remained steady with a moderate demand at about 10¢ for Cookson's and S½¢ for Hallett's, in small retail parcels.

Tiu Plate. - Dealings have been on a smaller scale during the past week, and the market has shown almost uninterrupted duliness both in the matter of spot goods and of forward deliveries. Buying has been confined to small lots for current use, and even orders of this nature have exhibited a failing off. Can makers are holding cff, placing their contracts for January and February deliveries, which are usually made about this time, and consumers generally appear extremely indifferent in the matter of laying in atock. Stocks in importers' and dealers' hands are by no means excessive, however, and the assortment in some lines, notably Squarea and imported Ternes, is very meager. Only slight changes have taken place in prices, but there has been a tendency to general weakness all along the line. The wage scale dispute in the domestic Tin Plate works is still unsettled and the production of American Plates continues restricted. The wage question is also causing great uneasiness on the other side, and on the whole the market is in an exceedingly unsettled condition.

A special London cable dispatch of November 28 to The Iron Age reports on the British Tin Plate market as follows: Tin Plate business has been moderate and the inquiry is small. Ordinary Cokes obtainable at 1½ pence less this week than last and prices generally weak. Lianelly makers threaten to close works owing to workmen refusing to concede in wages. This is due to lowness of prices and smallness of contracts. Shipments are smaller and stocks at shipping points have increased to 280,000 boxes. Sellers' quotations at Swansea are as follows:

Bessemer Cokes, IC 14 x 20. 9/9 @ ...
Siemens Cokes, IC 14 x 20. 10/ @ ...
J. B. steel Cokes, 1C 14 x 20 9/9 @ 10/
Ternes, 20 x 25 19/6 @ 22/
Charcoals, IC 14 x 20 11/ @ 13/

## Chicago Report.

Scrap.—The railroads are still making efforts to unload their stocks of O.d Material. Dealers quote their buying prices as follows, Chicago delivery:

prior		1
Per ne	t ton.	Per fb
No. 1 Wrought Scrap \$	7.00	
Machinery Uast	1,00	
Malloable Cast	5.00	
Store Plate (tree of burnt)	4.00	
Rurat Iron and Grate Bars	3.00	
Sheet Iros and Hoops	2.00	
Plow Steet and Breaking		- 1
Stock	4.00	
No. 2, such as Shovels, Hoes,		1
A*C	3.00	
Old Roders—whole (FOD)	3,00	
44 dron)—cut in single		1
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler		- 1
Tubes	5,00	
Cast Borings	3,00	
Turnings	4,00	
Horseshoes	7.00	
Copper Bottoms		ti ¢
Copper Chips and Iteavy		$\begin{array}{ccc} 7 & 0 \\ 6 & 0 \end{array}$
Heavy Brass		6 - 6
Light Brass		3 9
Pipe Lead		2186
Tea Lead		21.9
Zinc		2 % €
Rubber		31/24
Tenonce		

Anthracite.—No improvement is visthle in the demand. The following prices on carload iots of 12 net tons or over can be shaded by good buyers:

	Egg, Sto.		
	Grate.	and Ch.	
Chicago, Ill	\$5.00	\$5,25	
Milwaukee, Wis	5.00		
Kansas City, Mo	8.20	8.45	
Kansas City, inc.	8.20	8,45	
Conneil Bluffs, Iowa	8,35	8.60	
Lincoln, Neb	8.20	8.45	
Sioux City, lowa	8.25	8.50	
Aberdeen, S. Dak	6.30	6,55	
Dubuque, Iowa	6.50	6.75	
Madison, Wis		7,75	
St. Paul, Minn	7.50	6.75	
Burlington, Iowa	6.50	8.20	
Des Moines, Iowa	7.95		
Davenport, Iowa	6.30	6.55	
St. Joseph, Mo	8,20	8,45	
Leavenworth, Kan	8.20	8.45	
Omaha, Neb	8.20	8.45	
Omana, Noo			

Colorado Anthracite.

COLORADO FUEL & IRON COMPANY.

Concini	
Denver	\$8.00
Denver	8.00
Pueblo	8.00
Colorado Springs	8.00
Leadville	10.00
Chevenne, Wyo	10.00
All points between Denver and	8.85
Missouri River	0.00

## CONDITION OF THE

# Hardware Trade.

SUALLY at this advanced stage of the season a marked falling off in the volume of business is expected, but at the present time it is the general report of those in close touch with the market that the demand continues fair, not showing the usual diminution. A great many small orders are being received by the jobbing houses, covering assortments of goods in which winter specialties and holiday articles have a prominent place. The jobbers also are sending in a few orders for immediate chipment to supply their present requirements, and many of them are negotiating for goods for spring de-In the matter of prices there is livery. In the matter of prices there is little if any improvement in the general tone of the market. On many goods ruling prices are weak, and within the past few months there has been more or less of a decline in many articles. The condition of the iron market unfortunately does not give indications of an early improvement or furnish a basis for expecting advanced prices and a stronger tone. Owing to this state of things buyers are limiting their purchases to such goods as are sure soon to be taken off their hands in the regular course of business. The fact that on one or two lines advances have been made within a few weeks is referred to as indicating the possibility that buyers who defer placing orders too long may be obliged to pay higher prices. Recognizing the fact that there may be a reaction from the extremely low prices now ruling, careful merchants are watching the market closely so as to perceive, if they can, the tirat indications of a turn. Many of them express the opinion that prices are not likely to go much lower, and consider it a wise policy to purchase conserva-tively and carefully such goods as their business calls for.

Advices from Chicago.—Shelf Hardware jobbers report another very good week as compared with the record for the preceding part of the year. The aggregate of sales is, of course, very much better than that of last year at this time. Localities in which farmers were reported to have suffered from crop failure are even doing fairly well in purchases of merchandise. The hand-to-

mouth policy pursued among merchants is having the effect of prolonging trade and making it very steady. The demand is of a general character on this account. The full line of shelf Hardware is moving, and seasonable goods are going out in a steady stream. Inquiries are improving for heavy goods, and country merchants are quite generally asking quotations on carloads and half carloads, showing that they are inclined to stock up a little in these lines. The shortage in tinware continues, although the factories have turned out larger quantities the past six weeks than during any similar period in their history. Heavy Hardware is not quite so active as last week, but the condition of this branch of trade is still fairly good.

## Notes on Prices.

Wire Nails.—There continues to be a good deal of inquiry for quotations on amall lots for comparatively early delivery and larger parcels to cover future requirements. The volume of business also has been very satisfactory and the mills are well occupied on orders and have comparatively small stocks on hand. Notwithstanding this the manufacturers are competing very actively for business, and prices are low and somewhat irregular. The market is represented in a general way by the quotation of 90 cents for carload lots at mill, but orders have been placed at 85 cents.

Advices from Chicago.—A few good sized contracts are reported by manufacturers, but trade generally has been light. The large buyers appear to have covered their requirements fairly well during the season of water delivery. Inquiries now coming up are chiefly from the interior. Prices are about the same as they have been. Jobbers report a much larger inquiry for mixed cars of Nails and Barb Wire. They quote in a regular way \$1.10 for small lots from stock and are making strong efforts to maintain this price in spite of competition from jobbers in other localities.

Cnt Nails.—The Cut Nail market continues in about the same condition as at our last report, with a fair though not heavy volume of business. Small lots from store in New York are held at. \$1 to \$1.05.

Advices from Chicago.—Orders are reported by manufacturers to be of the same character as heretofore. Merchants are only buying what they actually need and are not contracting ahead to any extent, but their orders keep the local factory well employed. Prices are unchanged, small lots from stock selling at \$1.

Barb Wire—There has been little change in the Barb Wire market since our last lasue, prices being represented by the quotation of \$1.85 to \$1.90, a figure which, however, has been slightly shaded. There is a good deal of inquiry for lots for future delivery, and a number of orders have been booked. Manufacturers refer to the indications of an exceptionally large business during the coming year. Some of them are disposed to be conservative about naming low prices for future delivery.

Advices from Chicago.—The outlook for Barb and Plain Wire is growing very much brighter, so far as demand is concerned. Inquirles are being received from a very large part of the Northwest, both for early shipment and

future delivery. Every effort is being made by buyers to secure lower prices than manufacturers have thus far quoted. The circular recently sent out from a Pittsburgh house appears to have had the effect of stirring up much of this inquiry, which is now coming in to the standard manufacturers. They refuse to meet the quotations which have been made by their competitors and express the belief that in a short time it will be shown that it is not necessary to make the great concessions asked. Jobbers' prices for small lots from stock are now \$1.75 for Painted and \$2 10 for Galvanized. The movement in Plain Wire and all classes of Market Wire and related goods has been exceedingly active of late and the prospects are very flattering for a very much heavier trade than usual after the close of the year.

Parker Portable Heater. — The Charles Parker Company, Meriden, Conn., and 97 Chambers' street, New York, request us to state that the discount to the trade on the Parker Portable Heater is 50 per cent., instead of 50 and 10 per cent. as previously announced.

Rat and Game Traps.—Streeter's Schaible Traps, manufactured by N. R. Streeter & Co., Groton, N. Y., New York effice, W. H. Jacobus, 90 Chambers street, an illustration of which appeared in our last issue, are sold at a discount of 33½ per cent. from the following list:

No.		Gross.
20.	Rat Trap	. \$21 60
30.	Game Trap, without chain	28.50
30.	Game Trap, with chain	. 36,00

Knapp's Faucets — Knapp's Faucet Company, Syracuse, N. Y., are putting on the market the Combination Wood and Metal Faucet, a description of which was given in our last issue. The Faucet is sold to the trade from the following list, which is subject to a discount of 25 per cent.:

	Per dozen.
No. 1, 20 inches long, for lager.	\$36.00
No. 2, 18 " " ale	36.00
No. 3, 20 " " ale	36.00
No. 4, 18 inches long, for stock	k ale.
with automatic strainer	
No. 5, 20 inches long, for stock	k ale.
with automatic strainer	

Oil and Gasoline Can.—The New Idea Oil and Gasoline Can, put on the market by A. F. Chable, 2827 Euclid avenue, Cleveland, Ohio, and described in our issue, Nov. 10, is sold to the trade at \$12 per dozen, subject to a discount of 30 per cent.

Glass.-The American Window Glass market is in a slightly improved condition over that reported last week, in the way of both prices and demand. There is little difference in the printed prices of the various manufacturers, which are nearer to the market price than usual, and manufacturers less inclined to make concessions. There is an equivalent to 1356 pots reported as being in operation, a larger number than were working this time last year. This fact, taken into consideration with the statement that no great amount of Glass is being put into stock, indicates a fair and steady demand. Pittsburgh prices in carlots are reported as being 89 per cent. discount for single and 90 and 5 per cent. discount for double strength Glass. The Plate Glass business is not ln a condition satisfactory to the manufacturers, as demand has fallen off considerably, with a not very encouraging outlook for the future.

Old Rags, Paper, &c.—Business is fair. Prices are about at their former

level, the following quotations representing about the rates paid by dealers, New York delivery:

D.	9 08 91. 4
	3 02 34 6
	840
	1 (4) 140
	31 62 31 6
	18, @ 21,4
	1 (2, 1), 0
Ϊþ	5,0
ĬL.	76 @ 1 0
Ъ	660 86
Ъ	1 (2140
D	36 00 8/40
Ιb	2.50
Ъ	% @ 1 0
	% OF 8/4
īh.	1. 0
Th	8 4
ħ	14 a
ħ.	1360
	1 @ 11/2
	84 @ 1 0
	× @ × ¢
	184 @ 2 0
р	11/4 (0) 11/40
Ъ	% 60 X 6

Old Metals —The demand for Scrap Iron is good, and stocks are becoming less, but prices, although firm, show no quotable advance. Other metals remain quiet. New York dealers are buying at about the follows quotations:

Heavy Copper	. 70	Do	7	ø
Light and Tinned Copper	76	Ъ	616	1
Heavy Brass	*	Ъ	484	Ż
Light Brass				
Lead	19	Þ	284	¢
Tea Lead	8	Ъ	216	¢
Zinc	a)	Ъ	214	¢
No.1 Pewter	*	Ъ	11	¢
No. 2 Pewter	-	Ъ	5	ø
Wrought Scrap Iron. # gross	1			
ton \$7.5	0 (	2	\$8.0	0
Honor Coat Comon W arrow	,	_		

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, # fb	0	\$0.031/4
Rubber Shoes, carloads, de-	_	
livered at factory, # b	0	.04%
Rubber shoes, less than car-		
loads, ₩ b		
Large Hose, ₩ ton	0	15.00
White Wringer Rolls, * 1b	0	.035/4
White Syringes, 19 lb	0	.03%

SILVER & Co., 304 to 310 Hewes street, Brooklyn, N. Y., manufacturers of house furnishing specialties, have contracted for important additions to their plant in order to meet the increasing business which each month brings to them. Two years ago the present buildings were considered too extensive for their requirements, but they have become already too small to their business in its various branches.

T: actory contains departments for the manufacture of stamped and pieced Tin Ware, for nickel plating, polishing and grinding, a blacksmith shop, japanning and tinning departments, glass blowing, sheet iron and metal working, and the manufacture of aluminum utensils. The last named branch has grown to large proportions in the four or five months in which the firm have undertaken this work. The existing plant includes a four story and basement building, corner Broadway and Hewes street, containing about 40,000 square feet of floor apace, devoted exclusively to the manufacture of the firm's house furnishing inven tions, and two smaller buildings ad-joining. All this space is overcrowded. For the past three weeks the factory has been running night and day to keep abreast of orders, and November has been the banner month of the firm's ex-

#### CONTENTS.

CONTENTS.	
Editorials: Pac	ar.
Colonel Ayers' Tin Plate Report	
A Penceful Strike Succeeds	31
Should Manufactories Admit Visitors?	31
	31
The Letter Box—	0.0
Discoloration from Tin Strainers	32
IsIta Leak :	32
dug Shaped Cistern. Hiustrated	6)14
Steam in Boiler	32
Tin Plates—	
American Tin Plate Production	33
The Welsh Tin-Plate Troubles	35
Wages Agreement in Court	35
Tin Pack Shear. Illustrated	20
Scrap	2363
Heating and Plumbing-New Work and	
Contracts	37
The Blackwell's Island Bridge	37
	01
Plumbing and Gas Fitting—	
The E. S. Wheeler & Co	
Sanitary Earthen Ware	38
Plumbing Show Rooms	38
Traps and Vents	38
Steam and Hot Water-	
Society of Heating Engineers	40
Hesting a Barber Shop. Hlustrated	10
Combination HeatingI	40
Heating a Greenhouse with Hot Water.	
Illustrated	41
Standard Pipe Flanges	41
	42
School Boller Explosion	42
Heating Notes	1~
Roofing and Corniee—	
Eave Finish for Metal Roofs. Illus	43
Laying Gravel Roofs	43
Instruction in Sheet Metal Work	44
The Sims Ornamental Boof Gutter.	
Illustrated	44
Flashings	44
C. C. Walworth	45
Frade Notes	45
How Shall We Gauge Wire and Sheets?	46
inproved Bending Machine, Illus	50
Address to New York Trade School Stu-	
dents	50
Blove Trade Notes—	
Western Freight Rates on Stoves	51
Chat About New York Stove Business	
	5
and the Howery	
The Leibraudt & McDowell Stove Com-	10
puny	52
James II. Taylor	52
Odd Plates	52
The Open Fire Place, Past and Pres-	
entIII	53
Trade Report—	
The from Market	55
Metal Market	55
Chicago Report	56
Condition of the Hardware Trade	56
Notes on Prices	56
Metal and Miscellaneous Prices	57
abor Exchange-	
Help Wanted	59
Stuations Wanted	

# Metal and Miscellaneous Prices.

## CHICAGO, NOVEMBER 29, 1894.

60 t co	Irondale, AAA, tissue paper packed :	Sheet Iron-
Tin-	16 full wideht 14 v 20\$5.75	Black.
Straits pigs1614¢	IX, full weight, 14 x 20 7.50	Common
Imported Tin Plates-	Irondale AA:	American Refined.
Charcoal Plates.—Bright.	IC, full weight, 14 x 20	10 to 90 10 to 2 2.104 2.9.104 1
guaranteed Plates command special rices, according to quality.	frondale A:	21 to 24
IC, 10 x 14 \$5.75	IC, full weight, If a 20	Russia, Planished, &c.
10, 14 x 20	Irondale B:   1C, 100 lbs   13 x 20	Genuine Russia, ali numbers184 net. Patent Planished# DA, 1014; B, 944 dis, 55
delynGrade IX, 12 x 12@ 7.50	Irondale C. IC. 14 x 20, 100 lbs 4 50	Craig's Polished Sheet Steel884
IX, 14 x 20 7.50 IX. 20 x 28 3 15 10	1   1   1   1   1   1   1   1   1   1	Galvanized.
DU, 124 x 11 99 0.00		Juniata, or first qualitydis.76%10≸
DX, 121 x 17 7.25   1C, 10 x 14 5.56	R W & B., IC, 14 x 20, 108 lbs \$5.40	Copper—
Allaway Orade   1C, 14 x 20,	R. W. & B., IC, 14 x 20, 100 lbs 4.75 R. W. & B., IC, 20 x 28, 216 lbs 10 00	Ingot.
DX, 12\bar{6} x 17 \( \frac{1}{2} \) 7.2\bar{6} \\   \text{IC}, \( 10 \) x 14 \( \frac{1}{2} \) 5.5\\   \text{IC}, \( 12 \) x 12 \( \frac{1}{2} \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) x 20 \( 14 \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) x 20 \( 14 \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) x 20 \( 14 \) 5.5\\   \text{IC}, \( 14 \) x 20 \( 14 \) x 20 \( 14 \) x		Lake
Oake Plates-Bright.	Roofing Plates.	Sheet and Bolt:
Per hox.	6 10 75	Discount on old list (except advance on cold rolled polished boiler sizes to 25¢), 25%.
	Kmpire, 1X, 20 x 28	Copper Bottoms.
10, 14x20, 100 b, 4.50 @ 4.75 10 x 20	1X, 20 x 28@ 11.10	Discount on old list, 25%. Scamless Brass and Copper Tubes.
20 x 28	Alaska IX, 20 x 28@ 10.70	Base price, 1746, Unicago, with extras
	IX, 20 x 28@ 18.50	according to size. Copper, Bronze and Gilding Tube, 3# \(\Psi\) b additional.
Charcoal Plates.—Terne.	Alaska (Reavity Coated), C, 2012.53 16:70 Alaska IX, 20 x 28	
Guaranteed Plates command specia prices, according to quality. Tansel and Dean Grades.— IC. 14 x 20	Westmoreland:	Brazed Brass Tubing. (100 fb lots.)
Tansel and Dean Grades.—	1C, 14 x 20	(To No. 19 inclusive.)
20 x 28@ 10.00 IX, 20 x 28@ 12.5	Kenwood:	Discount, 40s. Plain, 34 inch up to 2 inch\$0.36
Forcester Brand and equal.	IC, 20 x 2810.50	
Forcester Brand and equal.—  IC. 14 x 20	Furmston:	Flain, \$6 inch up to \$6 inch
1X, 14 x 20 6.25 26 6.5 20 x 28 12.00 @13.t	Irondale AA, IC, 14 x 20	Plain, 4 inch up to 5-16 inch
Tin Boiler Plates.	Irondale A, IC, 20 x 28	Plain, 3c inch up to 3c inch
Per box of Per box o		Plain 3 inch and larger Special.
100 shoots 112 sheets		Plain, smaller than % inch Special Bronze and Copper 3¢ advance
X, 14 x 28	IC, 14 x 20	Roll and Sheet Brass. (160 b lots.)
XX. 14 x 51 15.00 15.0	1C, 20 x 28	Discount, 40\$.
56 sneets		Slab Spelter-
X, 14 x 56 \$20.50 \$	1 ***	Western Speiter4\$
X, 14 x 60 32.25	E. L.: IC, 20 x 28	
	Jessie:	81.75
American Tin Plates.	IC, 20 x 28 10.50	800 b easks, 4.95 Loose sheets. 5.05
Charcoal Flates.—Bright.	Old Process:	
Minerva: IC, 10 x 14, 12 x 12, 11 x 2085.37	IC, 14 x 20. 8.50 IX, 14 x 20. 10.00 1C, 20 x 28. \$17.00 IX, 20 x 28. 20.00	10%@11%
1X, 10 x 14, 12 x 12, 14 x 10.6.62	1C, 20 x 28	Extra Wiping94@1044
Florence	H R L Old Style:	The prices of the many other qualities
10, 10 x 14, 12 x 12, 14 x 20. \$5.5 [X, 10 x 14, 12 x 12, 14 x 20. 7.	50 IC, 14 x 20	vate brands vary according to composi-
Palma.—	1C, 20 x 2814.00	tion.
IC, 10 x 14, 12 x 12, 14 x 20 6.5 [X, 10 x 14, 12 x 12, 14 x 20 8.6]	Continuous Roofing Tin.	/ Antimony -
Usual extra for other crosses and 20 x 2 nouble these prices.	Merchant's Tandemper roll, 2.76	Cookson 108(@114
manage succes between	·	

- 1	Lead-
1	Soft Pig LeadSide
	Bar
ined. 8-10≠	Sheet
9-10	Wrought-Iron Pipe-
1-10#	
2.10	ly and under, Galv 50 & 10 & 0%
	114 and over Plain 0714&10&1(%
	Boller Tubes, list Oct. 24, 189270&10\$
. 954	Casing, list Nov. 16, 1892
net. 1,954 is. 55 1.854	14 and under, Plain.   57 4.8 0 810 8   14 and under, Gaiv.   57 6.8 10 8 0 8   15 and over, Plain.   07148 11811 8   15 and over, Gaiv.   57 14 8   16 and over, Gaiv.   57 14 8   18 18 18 18 18 18 18 18 18 18 18 18 18
0799	Cold Drawn Seamless Steel Tubing 105
	Cast-Iron Soil Pine-
5 % 10 <b>%</b>	Cast-Iron Soil Pipe— Cast-Iron Soil-Pipe, Tarred; sizes 3 to 6 Inches, Inclusive
	other sizesdis 70&105
	Leader Pipes— Abendroth's Gaiv'. Spiral Riveted 60% Austin's Corrugated 65% Gordon & Gilbert's Corrugated 65% Ritchie's (Osiv'. Iron only) Cor'd 65% Ritchie's Spiral Lock Seam, Gaiv'd 60% Austin's Spiral Ribbed Pipe 65% James A Miller Ros. (Osiv'd. Iron.
1036	Abendroth's Gaiv. Spiral Riveted 60%
-/-	Austin's Corrugated 65%
vance	Ritchie's (Oslv. Iron only) Cor'd 65%
zes to	Ritchie's Spiral Lock Scam, Galv'd 60\$
	only) Corrugated
ubes.	Elbows-
xtras	Adjustable
, 3≠ ₩	Furnace Fittings— Discount from Excelsior Steel Far nace Co.'s list
, of <b>t</b>	Discount from Excelsion Steel Far
ots.)	Stool Poofing
0.5.7	Perfection
	Steel Roofing
\$0.36	Massattia Chimetea
36 38	Metallic Shingles \$2.00 square Merchant & Co.'s Spanish Tiles : Copper, 14 os \$36.00 square Tin \$9.75@\$14.25 square Steel, painted \$9.00 square
41	Merchant & Co.'s Spanish Tiles:
48	Tin \$9.75@\$14.25 square
.05 1.00 1.60	Qual painted \$0.00 sames
1.60	
38	
pecial	Drain Pipe-Tue.
pecial.	Drain Pipe-Tue.
pecial pecial vance	Drain Pipe-Tue.
pecial.	Drain Pipe-Tue.
pecial pecial vance	Drain Pipe-Tue.
pecial, pecial, vance lots.)	Drain Pipe-Tue.
pecial, pecial, vance lots.)	Drain Pipe-Tue.
pecial, pecial, vance lots.	Drain Pipe-Tue.
pecial pecial vance lots.)	Drain Pipe-Tue.
pecial vance lots.) 4¢	Drain Pipe-Tue.
**************************************	Drain Pipe-Tue.
. \$1.75 	Drain Pipe-Tue.
pecial vance lots.) 4\$	Drain Pipe-Tue.
. \$1.75 	Drain Pipe-Tile.
	Drain Pipe-Tile.
. \$1.75 	Drain Pipe-Tile. Discount from list

## NEW YORK, NOVEMBER 30, 1894.

The following quotations are for small lots.

Aluminum-
No. I Aluminum (guaranteed over 98%
pure), la rolling ingots
Small lots 5 5, 63¢
100-b lots
No. 1 Alum num (guaranteed to be over
98% pure), in ingots for remelting:
6mail lots & D. 60¢
100-m lots
Ton lots
No. 2 grade (guaranteed to be over 94%)
pure Aluminum), east in ingots for re-
melting:
8mall lots \$ 5, 55¢
Top lots
102 101311111111111111111111111111111111
Antimony-
Cookson 10 6
Hallett's ₹ 3, 8140
Brass-
Planishednet
Roll and Sheet25@30%
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
Lint April 9, 1894.
Plain Round Tube. Per b.)
k in. up to 2 in
hain, up to hain
helm up to be in
6 16-in.up to 34 in
W-in.up to 5-1 -ta
Kitchin unto Min 1 00 10
6-in.up to 8-16-ia
Smaller than 14-ln Special
3 in. and larger
Copper and Bronze Tubing-
Is w more than brane

Conductors—	- 1	
Corrugated. Round or Squ	are-	7
Galvanised	20 6 10 7	7
Tin	101 308	١
	300.1.74	
Spiral Riveted-	60≤	
Galvanized		•
See also Elbows and Shoes;	Kave-	
Trough Miters; Strainers,	Con-	1
ductor.	- 1	•
Conductor Strainers	See	
Conductor Strainers		
1 _		
Bottoms, Pits and Flats 19¢ W	h. net	
Ingot.	w, Let	1
Lake	10%#	1
Angonia Grade Arizona	**** & I	,
Ansonia Grade Casting	9340	1
Planished	net	1
Sheet and Bolt 15# W D, ne		
Tubes - See Seamless Tubes.		
Tubes - See Seamless		
Tubes - See Seamless Tubes.  Eave Troughs-	Brass	
Tubes — See Seamless Tubes.  Eave Troughs— Lan or Sith Joint, Galvanised	Brass 60&10%	
Tubes — See Seamless Tubes.  Eave Troughs— Lap or Slip Joint, Galvanised Lap or Slip Joint Terne	Bross 60&10%	
Tubes - See Scamless Tubes.  Eave Troughs - Lap or Stip Joint, Galvanised Eave-Trough Mitres	Brass 60&10% 60%	
Tubes — See Seamless Tubes.  Eave Troughs— Lap or Rilp Joint, Galvanised Lap or Bilp Joint Terne.  Eave-Trough Mitres Lap or Silp Joini	Brass 60&10% 60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lap or Slip Joint, Galvanised  Eave-Trough Mitres Lap or Slip Joint	Brass 60&10% 60% — list, net	
Tubes — See Seamless Tubes.  Eave Troughs— Lapor Rilp Joint, Galvanised Lapor Silp Joint Terne.  Eave-Trough Mitres Lapor Silp Joini	BrGss 60&10%60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lap or Slip Joint, Galvanised Lap or Slip Joint Terne.  Eave-Trough Mitres Lap or Slip Joint	Brass 60&10%60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lapor Rilp Joint, Galvanised Lapor Situ Joint Terne.  Eave-Trough Mitres Lapor Situ Joint	BrGss 60&10%60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lap or Rilp Joint Terne. Lap or Silp Joint Terne.  Eave-Trough Mitres Lap or Silp Joint Elbows— Plain Adjustable— Gaivanised.  Crimped Tubing—	Brass 60&10%60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lapor Rilp Joint, Galvanised Lapor Situ Joint Terne.  Eave-Trough Mitres Lapor Situ Joint	Brass 60&10%60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lap or Slip Joint, Galvanised Lap or Slip Joint Terne  Eave-Trough Mitres Lap or Slip Joint Elbows— Plain Adjustable— Tip. Crimped Tubing— Galvanised	Bross 60&10%	
Tubes—See Seamless Tubes.  Eave Troughs— Lap or Slip Joint, Galvanised Lap or Slip Joint Terne  Eave-Trough Mitres Lap or Slip Joint Elbows— Plain Adjustable— Tip. Crimped Tubing— Galvanised	Bross 60&10%60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lap or Slip Joint, Galvanised Lap or Slip Joint Terne  Eave-Trough Mitres Lap or Slip Joint Elbows— Plain Adjustable— Tip. Crimped Tubing— Galvanised	Bross 60&10%60%	
Tubes—See Seamless Tubes.  Eave Troughs— Lap or Rilp Joint, Galvanised Lap or Silp Joint Terne.  Eave-Trough Mitres Lap or Silp Joint	Bross 60&10%60%	

. 1	Elbows and Shoes-	7 1 2
5	Flat Orimp, Tin	
١	177 at Owlens	
۱,	Galvanized	1
-	Round or Square.	1
-	Round or Square. Tin	į
e	iron, Sheet-	1
ı	Common R. G. Cleaned	ı
ŧ.	American. American.	
	Nos. 10 to 16	ı
4		ŀ
6	Nos. 25 and 26. 9 b. 2.55. 2.006 No. 27. 25 b. 2 65. 3.006	ľ
t	No. 28 & B. 2.75 3.10d	L
8	No. 28.	ľ
8	Russia, Planunea, cc.	١
	Genuine Russia, according to assortment	١
	Patent Finalshed W.D. A. 10#; B. 96. 5% Craig Polished Sheet Steel W. D. 8%	l
4	Craig Polished Sheet Steel * D 8%	l
*	Galvanised.	Ì
	В. В.	Į
1	Nos. 10 to 16	ı
	Nos. 17 to 21   5 Nos. 22 to 24   5 Nos. 25 to 20   5 No. 27   5	l
æ	Nos. 25 to 20	ŀ
发发	No. 27	l
	No. 28	١
*	No. 30	ı
	Lead-	ł
	American Pig 314@3546	1
E.	Pipe	
	taberra an annual comment of any	•

1	Tin Lined Pipe
١	Metal, Expanded—
	Manufacturers' list No. 8.           Lathing         104           Fencing, Fainted Sheets         905           Netting, Fainted Sheets         905           Door Mata, Galvanised         95           Window Guards, Paneled         155           Tree Guards, Paneled         155
	Mitres, Eave-Trough—Bes Eave-Trough Mitres.
	Paints, Olis &c
,	Lead, Amn. White, in oil
	Raw, # gal
	spirits Turpentine:
	Putty: In barreis and 1/2 bbls01 / 3 .01 / 1 in tubs
	Booding Material, &c.:   Apphaltum, Trinidad' Refined, \$\foatin,  fon
e	Coal Tar Feit, 3 Ply, W roll 108 sq. ft.
*	Roofing Pitch # bbl \$2.25

### THE METAL WORKER.

#### NEW YORK AND CHICAGO.

Saturday, December 8, 1894.

DAVID WILLIAMS,

PUBLISHER

#### SUSINESS OFFICES:

NEW YORK
PHILADELPHIA220 South Fourth Street.
BOSTON146 Franklin Street.
PITTSBURGH Room 509 Hamilton Building.
CHICAGO 59 Dearborn Street, cor. Randolph.
CINCINNATIRooms 22-24 Pickering Building.
ST. LOUISBank of Commerce Building.
CLEVELAND

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

#### A Preparatory Trade School.

A very successful trade school for the benefit of the boys of the East side of New York City has been established in connection with St. George's Protestant Episcopal Church, of which the well-known Rev. Dr. Wm. Rainsford is rector. The school, which is located at 520 East Eleventh street, was started three years ago and has been growing in attendance and in scope each year. At present over 300 lads of the poorest class, of from 10 to 20 years of age, are receiving instruction in various handicrafts. Three plumbing classes have been added this season. The instructor in this department, W. J. Tucker, a Harlem master plumber, is an enthusiast in trade school work. and has already brought his boys to a remarkable degree of proficiency. The school was established and is mainly supported by the munificence of a wealthy member of St. George's Church, with the idea of preparing the boys for eventually entering the New York Trade School. Free Scholarships in that institution are awarded to the most promising lads. Three of the St. George's scholars have in this way entered the day carpentry class of the New York Trade School in the present term.

#### Fuel and Solar Heat.

If people were asked what warms our houses, in these days of improved heating appliances, most would say "it is heat produced by the combustion of fuel," coal or wood, as the case might be, and this would be correct. Occasionally one would be found who would say, "it is the heat of the sun," and this would be correct also. The fuel we burn in the present age has been produced in a past age by the action of solar heat, to which all known activities available to man for increase of his powers, his comfort, or his pleasure can be traced. Without the

sun's heat the masses of luxuriant vegetation that have been transformed and stored up as coal in the earth would never have existed. Without solar heat the trees whose wood is used as fuel would not have grown. Recent experiments of Professor Dewar indicate that at temperatures so low that oxygen liquefies, chemical action either ceases or is so much diminished as to justify the inference that it would cease altogether at still lower temperatures. It is certain that all life, as we know it. whether vegetable or animal, would end at a temperature higher than is necessary to liquefy oxygen. Without the heat of the sun all things on this earth would soon reach lower temperatures than science has ever been able to produce artificially, and all life as well as all other forms of activity would terminate. If the ancient snn worshipers had even an imperfect idea of the part this great orb plays in the grand activities of the universe, they are not to be wondered at for regarding it as the source of all power and beneficence and adoring it as such.

#### Making Pictures.

Opinions may differ whether the evidence of our eyes or our ears, which includes reading, which is the same, either seen or heard, is the more reliable, but for the sake of argument if may be assumed that a matter shown is plainer than the same told. Therefore, the "eyes have it." There is a temptation to refer to the hieroglyphics of ancient times and the universal sign language of the moderns in proof of the advantage of object or illustrated lessons. But what we shall now consider is the practical good to be derived from the ability to make a picture of the thing or transaction we wish to describe, and in a measure answering the question, "Should the workman be a delineator?" A course of technical study and practice in any branch of mechanics which did not include both the understanding of drawings and the knowledge of making them would be thought incomplete. Also the apprentice whose education is purely practical will find that it pays to devote occasional time to making pictures. It is not expected that the ordinary workman will become an expert draftsman, but it is a great advantage to be able to construct the thing on paper which we have in mind. One of the simplest things in sheet metal work would seem to be the drawing of a working plan for a common stove pipe job. But some tinners (not the reader) cannot mark it out so as to show the distance and angles, and their practice is to take plenty of pipe and elbows

and butcher the job on the premises. The same ignorance of plans and drawing is shown where furnace work is done by thumb rule. It may be stated that it is the province of the foreman or employer to take measurements and draft working plans. But as the energetic apprentice is a possible foreman he cannot afford to be without the "accomplishment" in question. Also there are some men in business who regret their inability to make simple sketches which would illustrate their ideas. Such an one was he who, lacking thename and number of a furnace repair, ordered it like his sketch. An answer was returned that the firm had no patterns for side saddles. We are living in the illustrated age, and every one who would be up to the demands of the times should cultivate the practice of making pictures.

Immigration Superintendent Stump in his recently issued annual report for the fiscal year ended June 30, 1894, shows a very material falling off in the number of immigrants arriving in this country. He estimates that from October, 1893, to June, 1894, the number of foreign born steerage passengers leaving the country was greater than the number arriving from abroad. The extraordinary ratio of decrease is shown in the following table, which gives the number of immigrants arriving from the principal supplying countries during the fiscal year 1893-94:

Country,		Decrease.
Italy	42,977	29,168
Germany	52.989	24,942
Sweden	18,286	17,424
Poland and Russia	38,666	13,334
Ireland	20,231	13,347
England and Wales	18,748	10,926
Hungary	14,700	8,129

The system of co-operative building associations has taken very firm root in Pennsylvania. According to the latest returns 250 of these associations have been chartered in the State since June, 1891, and the whole number is now stated to be 1239. The membership is 272.580; cash income in one year is \$44,432,686, and the assets, \$103,943-,364. These assets represent the accumulation of an average period of about seven years, and it is estimated that in the last 10 or 12 years another \$100,000,000 has been returned to the members in cash and redeemed mortgages, and nearly 100,000 homes have been secured through these societies.

According to the report of Governor Sheakley of Alaska, submitted to the Interior Department, the gold mining industry of the Territory Is now very extensive. The adoption of the latest methods and machinery for the treatment of gold ores has rendered easy, successful and profitable the manipulation of the low grade gold bearing quartz found extensively in Alaska. During 12 months past 240,000 tons of ore were treated, yielding \$768,000, or \$3.20 per ton. The cost of mining and milling was \$324,000, or \$1.35 per ton, leaving a net profit of \$444,000.

## THE LETTER BOX.

Hot Water from Cold Faucet.

From J. T. C., Winchester Ky .- One of our customers wishes me to explain to him why it is that he cannot get warm water at all times from his tixtures. This particular job was done by a reliable firm from a distant city. It is in a two-story brick building which is supplied with water from a tank. It has the usual boiler connections with kitchen sink and bathroom on the second floor and to all appearances is faultless. The owner claims, however, that at times hot water comes out of the cold water pipe and vice Please give me some idea of rersa what is the cause.

Answer .- Without a sketch of the piping it is doubtful if a satisfactory answer can be given to the problem submitted. It is natural to suppose that cold water comes from the hot water faucet when there has been no fire in the range and the water in the boiler ia not heated. Where the supply is taken from a tank it is not uncommon to get hot water at the cold faucet, particularly when the water back has a great heating capacity. Under such circumstances hot water will back up the supply pipe to the tank and frequently heat all the water in the tank, especially if the tank is not large. One way to overcome this difficulty is to reduce the size of the water back or reduce its heating capacity by fastening fire brick or a piece of cast iron between it and the fire. If the water is cold when it first comes from the hot water faucet and a waste of time and water is objected to, it can be avoided by a circulating pipe running from the hot water faucet back to the boiler and connecting with the pipe to the water back. This pipe need not be over & inch in diameter and will secure a circulation that will have hot water always at the faucet.

### Tools for Clearing Chimney Flues.

From James F. Ilobart, Brooklyn, N. Y.—I see in an old number of The Metal Worker an article by "Casar" of Louisville. Ky., who describes his method of teating chimney flues and also tells about a weight and rope business for clearing flues that may have become stopped or partially closed by swallow nests or brick dropped in by the matens when the chimney was constructed. "Casar's" weight and rope will do the work when half a dezen brick have become lodged, or when a colony of swallows may have preempted the location, but how would the weight and rope work when a foot or two of the chimney had been disloiged by lightning or by a tempost, and when about half the brick and mortar had fallen into the chimney and stuck there? I have had this thing happen

several times, and the only way I could get around it was to cut a hole in the chinney on the level with the obstruction and then remove the brick. The trouble, dirt and muss which such a job makes are bad enough without speaking of it. After cutting out several ob

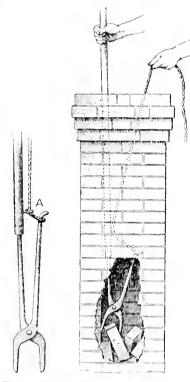


Fig. 1.—Tongs Fig. 2.—Showing on Pole, Method of Operation

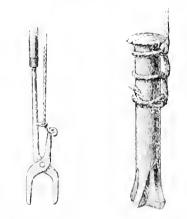


Fig. 3.—Tool for Small Flues.

Fig. 4.—Stone Drill.

Tools for Clearing Chimney Flues.

structions of this kind I set my wits to work and constructed the device shown in Fig. 1 of the sketches. This did the work in fine shape. The tool is nothing but a large pair of blacksmith tongs in combination with a rope and pole. A hole was burned in one end of the pole, a ferrule driven on to prevent its splitting, and then one leg of the tongs was driven into the hole. The tongs were of such a aze that they had a throat

large enough to receive a brick the 2-inch way. The free leg of the tengs was bent outward to form a slight hook, and then the rope was spliced or tied on, after which it was passed through the screw eye A, as shown. In Fig. 2 is represented the manner in which the tool is used. The pole is let down into the chimney until the tongs reat on the obstruction; the bricks are pried about until the tongs get hold of one, as shown; then the rope is pulled very tight and kept so until it is raised,

bringing with it a brick.

In small chimneys difficulty was found in opening the jaws of the tongs far enough to get hold of a brick. This was due to the fact that the long free handle struck against the side of the flue. The difficulty, however, was over-come by cutting off one leg very short and forming an eye in the end of the stump, as shown in Fig. 3. The acrew eye then had to be put on the remaining leg, and then when the rope was alackened the tongs could open much wider than when the whole length of leg was employed. A number of times I found it necessary to knock one or more brick out of a chimney when they had become lodged after falling into it. To knock a hole through such obstructions I took a 4-inch stone drill, as represented in Fig. 4, a drill of this kind being used for making 4 inch holes in atone for setting iron fence posts. There are two cutting edges at right angles to each other, and these corners soon cut each other, and these corners soon cut and break up the brick against which the drill may be churned. As atated, however, the drill will only do when the obstruction is tight. It is better to use tongs and pick out all the brick possible before attempting to drill through. If the stoppage is close to the top of the chinney, within sight, a pretty stiff pole will work well to carry the tongs, but if down a long distance and the chimney has bends in it, then a and the chimney has bends in it, then a alim pole of hard wood must be used so

#### Incasing Indirect Radiators.

that it will readily pass through a crooked flue.

From W. D., Scranton, Pa.—Will The Metal Worker please inform me how an indirect radiator box should be made, and how much larger it should be than the radiator.

Answer .- Indirect radiators are incased in galvanized iron boxes more generally than was previously the custom. Sometimes they are incased in wooden boxes lined with tin and so constructed that they can be readily taken down, screws being used to fasten them together. In The Metal Worker of March 17 of the present year are illustrations of different forms of indirect stacks showing the radiator in place with the piping and the box surrounding it. It is the general opinion that the box should fit close to the sides of the radiator so that all air passing through it must come in contact with the radiator, and that there should be a

space not less than 12 inches both above and below the radiator for an air chamber.

#### What Is a Pedestal Closet?

From E. E. H., St. Louis, Mo.—I wish you would favor me by answering through The Metal Worker what water closets the manufacturers class in the pedestal pattern.

Answer. - During a recent visit to one of the sanitary earthenware potteries at Trenton, N. J., this inquiry was discussed, and at the catablishment in question only those were classed as pedestal closets which inclosed the trap and all the water passages so that they were not exposed, and the inclosure formed a substantial support to the closet. It was suggested that any closet which rested on its own base might properly be included in the pedestal class, whether inclosed or not. While this view of the question was conceded as correct, it was stated that it was not customsry to term such a closet a pedestal closet.

#### Water in Heating Boiler.

From S. H. C., Waverly, Ioua.—I wish to ask how often should the water be changed in a house heating boiler—that is, does the water lose its heating power? We have a customer who changes his every two months. I use rain water and have not drained it off in three years.

Answer .- We think the plan followed by our correspondent is decidedly the preferable one. There is no loss of heating power in the water through long usage. If there is any reason for drawthe water, it would be simply to remove any dirt or rust that might have accumulated. The first effect of heating water is to drive out the air that is held in solution, after that it remains practically unchanged for an indefinite period. This driving off of the air is seen in a kettle when small bubbles form before boiling begins. The effect of driving off the air is, if anything, to permit the water to attain a higher temperature, even though the change may be insignificant in amount. The correspondent's plan of using pure water and not changing it is to be commended.

#### Frosty Show Windows.

From D. L. R., Jacksonville, Ill.—A few days ago I was called on to fix a show window in a store so that the moisture would not condeuse upon the glass in damp weather and freeze in cold weather. The window is a double one, supposed to be air tight. Is there any way to ventilate it by taking cold air from the bottom on the outside and putting in small ventilators at the top? I saw an article on the subject in The Metal Worker some years ago, but have forgotten the principle upon which the remedy is applied.

Answer — Various means have been adopted for overcoming the difficulty mentioned by our correspondent, and we cannot do better than to refer to some of those described by members of

the trade and published in earlier issues of the paper. According to one correspondent the plates of the show windows are first encased inside with glazed sash well fitted. One and a quarter inch holes are then bored about 6 inches apart through the outside panel under the floor of the show window. Then 1 inch holes, 2 inches apart, are bored through the floor of the show window as close to the outside plates as possible. At the top of the window, either through the sash or ceiling, the same number of holes of the same size are made as in the base. This arrangement is said to secure entire freedom from the frost collecting on the glass.

Another dealer has the windows made in sections, matched together and placed on the outside of the plate glass, with the desired results. He has two windows 7 feet wide and 9 feet high and three windows 21 feet wide of the same hight, with a light transom sash over each. Still another writer has sliding sash well fitted at the back of his show windows, leaving a space for the display of the goods between the sliding aash at the rear and the plate glass in front. Half a dozen 4-inch holes are mettod bar deas abiatom mettod and as many more at the top of the sash. As a result of this arrangement he says that for ten years he has had clean windows, while those of his neighbors are obscured by frost in cold weather. Lamps or gas cannot be used in the window without the glass frosting, but electric light can be employed without any ill effects. In one of the cities in Michigan there are a number of stores having the show windows arranged with a ventilator at the bottom, admitting the cold air from the outside, and a conductor pipe at the top of the window leading into a chimney, which causes a circulation of air, resulting in about the same temperature on the outside and inside of the plate glass, which keeps it free from frost. Still another plan for preventing the gathering of frost on show windows is to case the windows on the inside with sliding sash, thereby keeping out dust and making a good showcase for the display of goods. Over the door is a transom 3 x 4 feet, which is never closed within 6 inches, it being hung from the bottom, and serves as a ventilator, taking air from the ceiling. When the show windows are lighted in the evening one of the sliding sashes is left open, in order to secure the benefit of the transom ventilator. The store is ateam heated, although a stove or furnace heated store will probably work under the same plan. A correspondent in the State of Maine writes that he had two show windows in his store encased with glazed sash for the display of cutlery, guns and other goods of iron and ateel. Noticing that one of the windows remained entirely free from frost

while the other one was completely ob-

scured by it, he examined the frosty one and found that the carpenter in putting up the inside sash had not made a close fit between the sash and the walls. This permitted the warm air from the store to enter and come in contact with the outside glass, where it condensed and formed a thick coating thereon. This opening was stopped and there was no further trouble with frost. Neither of the inside sashes was air tight, but the correspondent states that they need to be reasonably tight and the doors kept closed as much as possible. A wlndow without inside protection may be kept clear of frost by creating a circulation of the air in contact with it by means of a revolving fan or other contrivance for keeping the air in motion.

#### Cleaning Solder.

From W. F. SARGENT, Bayfield, Wis.
-I wish to thank "Oliver I wist" for the timely information on how to clean wiping solder, that appeared in The Metal Worker of November 17. I al-ways receive my old instructor and bureau of information, The Metal Worker, Tuesday evenings. Tuesday of that week I could not think what had gone wrong with my wiping solder. It was like trying to keep dry sand on the pipe, seeming to have no adhesiveness at all, so I gave up in disgust and told the boss I would have to quit the job (as we didn't have any other solder), until he could order some more solder, which would make a delay of four or five days. That evening I received The Metal Worker, and in perusing its columns I came across Oliver Twist's article on how to clean wiping solder, and may be I didn't read it with avidity. Next morning I tried his receipt of putting in sulphur and it worked like a charm, and my solder was as plastic as white lead. Zinc was the trouble. I had been wiping on a good deal of brass work and it has got in the solder that way. I am always very careful not to overheat my solder and tin my brasses with copper bit.

#### Sheet Metal Boat.

From Louis Giclas, Washington, D. C.—As I have had numerous inquiries for details of construction of my steel launch, I concluded the best way to give them something of value was to prepare a set of drawings and specifications for which I will make a small charge. I propose to furnish a set of blue print drawings, showing in detail the construction of the bost as well as the motor arrangement, with complete written instructions, and all so simple that any ordinary sheet metal worker can build himself a launch.

#### Steam in Boiler.

From I. N. PHILLIPS, Nashville, Tenn.—If "F. G. N.," Columbus, Ga., whose letter appeared in The Metal Worker December 1, will use larger pipes from water back to boiler the cracking will stop. If there is no workout pipe at bottom of boiler, let him put in one and use it for a minute or so, at least once a week.

#### Address Wanted.

From C. T. MAGUIRE, Hornellsville, N. Y.—I want to know where I can get Seaman's Automatic hot water heater for gas to heat 100-gallon range boiler.

# STEAM AND HOT WATER.

A Heating Plant as a Pump.

BY A. VENT.

In discussing the use of air valves on steam heating plants it was ventured by one of a party that they could be entirely dispensed with; another said they would be as effective and less conspicuous at the bottom of the radistor, and further remarked that there was no reason why they should be used

at the top of a radiator.

at the top of a radiator.

"I know of no more effective pump," said another, "than a perfectly tight steam plant from which all the air has been exhausted. If there are no leaks or other means for air to enter when the fire goes out and the steam condenses in the radiators, a vacuum will be formed there that will lift all the water out of the boiler and hold it in suspension. If a new fire is then built in the boiler its life for effective service will be very short, for no material has yet been discovered that will stand such use. In a first class steam heating system the air valves are a very essential feature in my opinion, unless some other method of performing their function la provided.

#### HEATING NOTES.

THE MODEL HEATING COMPANY OF Philadelphia report a very successful introduction of the Novelty Steam Generator, and also that there is an increasing disposition to use hot water as a method of heating in their city, having largely increased sales for this year for the Novelty Circulator.

THE HEADLEY-LEAVITT COMPANY, Trenton, N. J., are making a fine display of gas heaters and grates. Their specialty is wood mantels and fire place fixtures and gas and electric fixtures, although they do a full line of heating work, using the Kernan hot air furnace and the Richmond boilers. They have at present a \$1200 contract for the combinstion gas and electric lighting fixtures for the new Mechanics' National Bank. They also have the contract for heating the residence of Charles H. Wardell, at Parkville, N. J., with a Richmond boiler. They claim that the recent cold weather has found the 12-section Richmond boiler which they put in the Alms House, in connection with 3300 feet of radiation, to be amply capable of heating the building satisfac-

CURTIS & CURTIS, Bridgeport, Conn., have prepared plans for an extension of their machine shop in order to be able to meet the demand for their hand and power pipe cutting and threading machinery. The extension will be a machinery. The extension will be a continuation of the present shop, so that the new machinery will be on the same line of shafting, which will be extended in the new building. This building will be two stories in hight, the upper floor being fitted with light machinery for making small parts and for the smaller tools, for which they have a good trade.

THE OWNER of a new row of flats in New York advertises that "the steam heaters are warranted not to give the usual imitations of a boiler factory during the night or at any other time.

THE HOLLAND RADIATOR FACTORY, at Elwood, Ind., which recently passed into the hands of Chicago and Indianapolis capitalists, on the failure of the Elwood Iron Works, recommenced operations this week. The former manager, John Halloran, will have charge of the works for the present.

Jones & Jaeger, 92 Greenwich avenue, New York, have ordered two carloads of Holland radiators for use in the buildings of the Cutting estate at Thirteenth atreet and Fifth avenue.

SUPERINTENDENT YOUNG of the W. H. Page Böller Company, Norwich, Conn., was visiting at the New York office of Dubois & Darrow this week.

OFFICIAL BULLETIN No. 4 comes to us from the New York headquarters of the Master Steam and Hot Water Fitters' Association, giving the latest actions of the association and embodying the "Trade Resolutions," "List of Manufacturers in Accord" and the constitution and by-laws. It gives some of the comments of the manufacturers on the "Trade Resolutions" and a list of the officers of the association and the State vice-presidents, also a list of the secretaries of local associations.

A course of instruction that should attract attention in the heating trades is about to open at the New York Trade School on January 2. The Master Steam and Hot Water Fitters' Associagion of New York have appointed a special committee to supervise a course of instruction in steam and hot water fitting. The pupils will be taught methods of calculating the surface required in radiation for heating a building, the sizes of pipe necessary for supplying the radiators and all of the scientific information that is necessary in connection with it. They will also be given a course in drawing plans, showing how the radiators should be placed and the method of piping. Tho manual instruction will commence with the simplest work and continue to the piping of a building, explanations being given on all the little details that go to make a job a success or a failure in operation. Well informed, skillful workmen in this trade are eagerly sought and a knowledge of the installation of heating relation at the state of the state tion of heating plants, both from a practital and scientific standpoint, practital and will, it is believed, be secured at the school in a much shorter time than in working regularly at the trade.

THE steam and hot water heating establishment of F. W. Lamb & Co., 258 Michigan street. Chicago, has been closed by the sheriff.

THE WESTERN STEAM & HOT WATER HEATING COMPANY, 67 West Washington street, Chicago, have moved to 51 West Division street.

Calculating Chart for Areas and Cubic Contents.

J. L. BIXBY, JR.

As it is desirable and is the general practice to figure out the wall and glass areas and cubic contents of rooms to be heated, and as the time and labor required to perform these operations con stitute a large percentage of the cost of estimating, any means by which this expense and labor can be reduced, even though the results be not absolutely correct, will, I trust, be appreciated by my fellow workmen. The calculating chart herewith Illustrated will be found useful in estimating areas and cubic contents in rooms from 5 to 25 feet square and from 6 to 14 feet high. stated on the chart, the first left hand column of figures represents the width of the room, and the diagonals adjoining it the length of the room; the intersecting diagonals, marked from 6 to 14, represent the hights; the figures in the right hand column represent hundreds of cubic feet, and the figures at the bottom the area in square feet. The letters on the vertical lines are shown to facilitate reading. Points between figures or lines must be approximated. To illustrate the use of the chart the

following examples are given: Estimate wall area and cubic contents of a corner room 10 feet wide by 15 feet long by 10 feet high (the room would have two outside walls, one 10 x 10 feet, one 10 x 15 feet). Starting at 10 in the left hand column, follow across the chart toward the right hand until this point

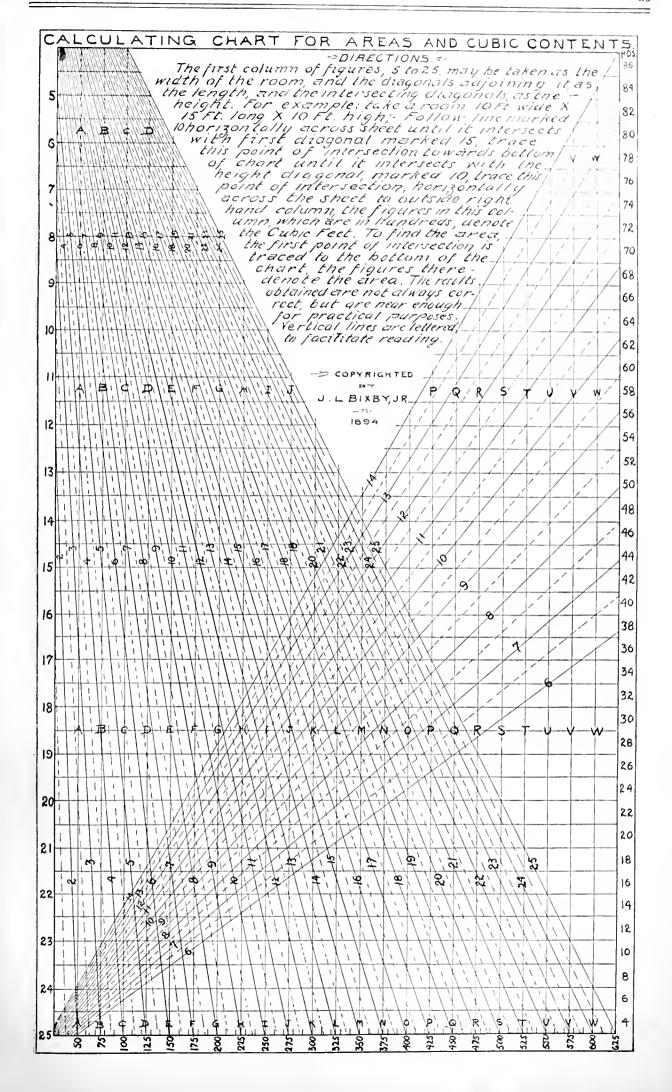
or line intersects with the first diagonal

marked 10, which is the hight of the wall. [It may be well to state here that when the area only is to be found what is termed above "the hight diagonals"—6 to 14—are not used.] To continue with our example, the width line 10 will be found to intersect with diagonal 10 on line C. Follow this point of Intersection to the bottom of the chart, and the area, 100 aquare feet, will be found. With the other wall the operation is the same, except

that we start at 10 and locate point of intersection with diagonal marked 15, which is on line E. At bottom of chart, at foot of line E, will be found 150, which represents 150 square feet, the area of the other wall. The area of the tree walls being therefore 100. the two walls being, therefore, 100 +

150 = 250 square feet wall surface. For the cubic contents proceed as follows: Start at point 10 in left hand column, and find point of intersection of this line with diagonal marked 15, which, as before found, is on line E; follow this point or line toward the bottom of the chart until it intersects with the hight diagonal marked 10. which is on the line 22; follow this line to the right hand column, and it will be found to end half way between 14 and 16; the figures represent hundreds, and as it is half way between 1400 and 1600, the answer would be 1500 cubic feet, the cubic contents sought.

Believing that this example in detail elucidates the mode of operation, the detail will be omitted in the fol-



lowing example, it being understood that where lines and figures are not shown the same must be approximated. Example: Cubic contents of room 13½ feet wide by 16 feet long by 12½ feet high. Starting at the horizontal line between 13 and 14 in the first column, find the point of intersection of this line with diagonal marked 16, which will be found to be about 11 inch to the left of line II. Follow this point down to the hight dlagenal 121, which is the dotted line between 12 and 13, and it will be seen that the point of intersection of lines 13½ and 16 with hight diagonal 124 is on a live between 26 and 28 in right hand column, which is 2700—the cubic feet. In practice the chart can be made much plainer by covering in red all diagonal lines and in blue all vertical and horizontal lines, also opposite the figures in the right hand column and half way between the horizontal lines, drawing short black lines similar to those at bottom of chart.

#### HEATING PLUMBING.

#### NEW WORK AND CONTRACTS.

PECK BROTHERS, Montpelier, Vt., have the contract for plumbing the Kellogg-Hubbard Library Building.

Disley & Weyand, Waterbury, Conn., are doing the plumbing and cornice work and installing a hot water heating plant in the Root Bleck. They are doing the plumbing in the residences of G. W. Connor and H. W. Hotchkiss.

GORMAN & ENGLISH of Wilkes-Barre have secured the contract for placing the heating apparatus in the new Polish Church at Plttston, Pa.

Barlow Bros., Waterbury, Conn., are using a Gold's steam boiler for heating the Town Hall at Naugatuck. They are placing a steam heater and doing the plumbing in the residence of George Lamb and are using a Magee combination hot air and hot water heater in the residence of Archer Smith. They are doing a very fine job of plumbing in the residence of Earl Smith.

J. J. SULLIVAN, New Haven, Conn., has the contract for the plumbing at the Dwight Kindergarten School Building.

W. H. Morrison, Torrington, Conn., has just put a Gorton boiler in the house of A. H. Palmer.

THOMAS J. BARRY, 316 North Twenty-first street, Philadelphia, Pa., recently completed a job of plumbing in the Convent of Notre Dame, on Logan square.

H. N. Jones, Merlden, Conn., is to build a \$5000 residence, to be heated with hot water and have a plumbing system.

THE CITY COUNCIL of Delaware, Ohlo, recently contracted with Armstrong Brothers of Springfield for steam heating boilers for the City Building, for the sum of \$1140.

WILLIAM GEREMEYER, Carlisle, Pa., has secured the contract for placing a steam heating plant in the residence of Rev. Dr. J. W. Richardson, in Getlyshutg

A NEW \$24,000 CONSERVATORY will be erected at Franklin Park, Columbus, Ohio, cext spring, which will be heated by hot water.

THE CONTRACT for the steam heating of the new McCusker-Hahne Building has been let to E. J. Rysn & Son, Danville, Ill.

Bips have been solicited for the heating apparatus for the Town Hall at Union Hill, N. J.

Tue: Stuntevant system of heating and ventilating is being placed in the mills of the Glens Falls Paper Company, in South Glens Falls, N. Y.

FOSTER & GLIDDEN, 53 Dearborn street, Chicago, are to place a Farquhar warm air furnace in the residence of J. C. Cox, Morgan Park, Ill.

THE CONTRACT for the plumbing of the Lincoln School has been awarded to Miller & Johnston, Fall River, Mass., for \$1471.

THOMAS K. LEMON, New York, will use 10,000 feet of Holland radiators in the Casey Flats, at Elghty-eighth street and Columbus avenue, in which he is installing the heating plant.

A. B. Noves & Co., St. Johnsbury, Vt., are heating the town almshouse and St. Johnsbury House, using Exeter radiators.

John Hickman, Paterson, N. J., installed two Sunray boilers, and the heating plant in Helvetia Hall, at Paterson, N. J., where the Paterson plumbers recently held a "Smoke." All the plumbers present agreed that the work was as fine as any they had seen.

LEVI McBRIDE, Paterson, N. J., has the contract for the plumbing and heating in the residence of J. Raymond, Ridgewood, N. J.

THE CITY OF DAVENPORT, IOWA, will erect a new City Hall which will have a modern plumbing system and be heated by steam.

Schuster Bros., 234 North Clark atreet, Chicago, are to do the plumbing, gas fitting and sewerage in the residence of O. Foremann, Michigan avenue and Thirty-fifth street.

ALVA HUBBARD & Co., Washington, D. C., report the following contracts on hand: The heating plant in the Masonic Hall Building and in the atore and apartment house of William Hahn & Co. Heating plants are also being installed by them in the residences of Dr. Louis Kolipinski, A. Z. Tyssowski, Col. Weston Flint, Jas. T. Bradford, R. Harris and Leo Simmons, besides that of William B. Daingerfield, at Alexandria, Va., the hot water system being employed.

THE UNION FURNACE COMPANY, 65 Dearborn avenue, Chicago, are finishing the steam heating in the Lenox Building, Cottage Grove avenue and Thirty-fifth street.

COOK & CHICK, 253-255 Kirziestreet, Chicago, have the contract for hot water heating in the residence of Dr. W. D. Lonergan, Summerdale, Ill.

THE SAMUEL I. POPE COMPANY, 207 Medinah Temple Building, Chicago, are to install a steam heating plant in the Post Office Building, Sioux Falls, S. D.

THE L. H. PRENTICE COMPANY, 203-205 Van Buren street, Chicago, have the contract for steam heating in the residence of A. A. Sprague, 2636 Prairle avenue. All of the latest improvements in indirect steam heating will be used and all of the rooms are to be ventilated.

E. BAGGOT, 169-17i Adams street, Chicago, has the contract for the plumbing, gas fitting and sewerage in the Music Temple, Van Buren street, between Wabash and Michigan avenues.

H. R. LEAR, 156 Forty-third atreet, Chicago, is to do the plumbing, gas fitting and sewerage in the tlat building of C. E. Follensbee, Twenty-third and State streets,

Among the contracts recently taken for warm air heating by the Foller & Warren Company, 147-149 Lake street, Chicago, can be mentioned the following: Two residences of L. Gregorie, 110 Lawndale avenue; residence of John Smith, 154 North Clark street; residence of Chandler & Co., 1504 Rosalie court; seven houses of J. L. Cochran, Edgewater, Ill.

THE KELLY & JONES COMPANY, 48 52 North Clinton street, Chicago, are to install a steam heating plant in the store and apartment building of P. L. Underwood, Cottage Grove avenue and Forty-aixth street.

THE J. L. MOTT IRON WORKS, 311-313 Wabash avenue, Chicago, are placing 16 Sunray hot water boilers in the stations of the Metropolitan Elevated Railroad.

Among the contracts recently taken by J. J. Colvin, 159 La Salle atreet, Chicago, can be mentioned the following: Galvanized iron cornice work and slate roofing for the flat building of Charles Peterson, 571 North Robey street; galvanized iron work and slate roofing for the residence of A. B. Towers, Newport avenue; galvanized iron work and slate roofing for the residence of H. J. Thompson, Fulton atreet, near Francisco.

THE CONTRACT for heating and plumbing the new Chase Block, at the corner of Main and Pleasant streets, Concord, N. H., has been awarded to Lee Brothers of that city.

MAYOR GILLETT, Rome, N. Y., is readvertising for bids for the plumbing and drainage work at the Rome State Custodial Asylum.

THE SCHOOL COMMITTEE of Dayton, Ohio, have been empowered to purchase two heaters, not to exceed \$1200 in cost, for school buildings.

THE CONTRACT for the steam heating work at the lowa State Agricultural College, at Ames, was awarded to Wallace & McNamara of Des Moines. Their bid was \$4210.

SUNKEL & HECKMANN, Zanesville, Ohio, have secured the contract for the plumbing and ateam fitting for Sturtevant & Co.'s new building.

THE CONTRACT for heating the Center School House, at Uxbridge, Mass., has been awarded to the Springfield Coil Boiler Company, Springfield, Mass., who will put in one of their improved non-explosive boilers.

THE CONTRACT to furnish the heating apparatus for the county farm huildings has been awarded to the T. A. Lane Company, Manchester, N. H., for \$6714.

VICKERS & BROOKER, Binghamton, N. Y., have secured the contract for the plumbing for several houses being erected by W. W. Reynolds at Mount Vernon Park, N. Y.

Daniel Proctor, Rockland, Maine, is in charge of a steam heating crew who are installing the plant in the Knox House, at Thomaston.

#### Galvanizing.

Arbinteresting paper, the full title of which is "Rustless Coatings for Iron and Steel, Galvanizing, Electro Chemical Painting, and other Preservative Methods," was presented by M. P. Wood at the December meeting of the American Society of Mechanical Engineers, held in New York. From this paper we quote in part as follows:

Galvanizing, as a protecting surface for large articles, such as enter into the construction of railway viaducts, bridges, roofs and ship work, has not reached the point of appreciation that possibly the near future may award to it. Certain fallacies existed for a long time as to the relative merits of the dry or molten and the wet or electrolytical methods of galvanizing. The latter was found to be too costly and slow, and the results obtained were erratic and not satisfactory, and soon gave place to the dry or molten bath process as in practice at the present day; but the difficulty of management in connection with large baths of molten material, the deteriora tion of the bath and other mechanical causes, limit the process to articles of comparatively small size and weight.

The electro-deposition of zinc has been subject to many patents, and the efforts to introduce it have been lamentable failures in both a mechanical and financial sense. Most authorities recommend a current density of 18 or 20 ampères per square foot of cathode surface and aqueous solutions of zinc sulphate, acetate or chloride, ammonia, chloride or tartrate, as being the most suttable for deposition. Herman's process has been experimented with on a commercial scale, the chief feature being the addition of the sulphates of the alkalies or alkali earth to a weak solution of zinc phosphate. Electrolytes made by adding caustic potash or soda to a suitable zinc salt have been found to be unworkable in practice, on account of the formation of an insoluble zinc oxide on the surface of the anode and the resultant increased electrical resistance; the electrolytes are also constantly getting out of order, as more metal is taken out of the solution than could possibly be dissolved from the anodes by the chemicals set free on account of this insoluble scale or furring up of the anodes, which sometimes reaches 1 inch in thickness.

To all intents and purposes the deposits obtained from acid solutions under favorable circumstances are fairly adhesive when great care has been exer. cised to thoroughly scale and clean the surface to be coated, and which is found to be the principal difficulty in the application of any electro-chemical process for copper, lead or tin, as well as for zinc, and that renders even the application of paint or other brush compounds so futile unless honestly complied with. Unfortunately, these acid zinc coatings are of a transitory nature, their durability being incomparable with hot galvanizing, as the deposit is porous and retains some of the acid salts, which cause a wasting of the zinc and consequently the rusting of the iron or steel. Castings coated with acid zinc rust comparatively quickly, even when the porosity has been reduced by oxidation, aggravated no doubt by some of the corroding agents, sal ammoniac, for instance, being forced into the pores of the metal.

Other matters of serious moment in the acid electro-zincing process, aside

from the alowness of the operation, were the uncertain nature, thickness and extent of the coating on articles of irregular shape, and the formation of loose, dark colored patches on the works; the unhealthy, non-metallic look and want of brilliancy and luster prevented engineers and the trade from accepting the process or ita results, except for the commoner articles of use. The Cowper-Coles process of electro-zincing articles claims to overcome all these difficulties, and plants are in process of erection with a bath of some 14,000 gallons capacity, capable of turning out 40 tons of light work per week, and in which it is proposed to treat the plates of vessels 60 feet in length upon one or both sides, and the frames of such vessels as torpedo boat destroyers and kindred craft after riveting up. These plates and frames are given a thin coating of zinc by this process that appears to be perfectly uniform in character and extent, whatever the shape of the piece may be and however numerous the iugs, tlanges, mortises or core holes, and is called "zinc tlashing"—that ia, coating the iron or steel article, after pickling and cleaning, with a thin coat of zinc about 1 ounce per square foot of surface, which resists the inclemency of the weather and mechanical injury as well as a thicker coat, and is found to afford sufficient protection in most cases, and is adequate protection until such time as it is ready to receive the usual paint coatings.

To obviate any tendency of the paint to peel off from the zinc surfaces, as it generally manifests a disposition to do, it is recommended to coat all the zinc surfaces, previous to painting them, with the following compound: One part chloride of copper, 1 part nitrate of copper, 1 part sal ammoniac, dissolved in 61 parts water, and then add 1 part commercial hydrochloric acid. When the zinc is brushed over with this mixture it oxidizes the surface, turns black, and dries in from 12 to 24 hours, and may then be painted over without danger of peeling. Another and more quickly applied coating consists of bichloride of platinum, 1 part dissolved in 10 parts distilled water and applied either by a brush or sponge. It oxidizes at once, turns black, and resists the weak acids, rain and the elements gen-

erally.

Zinc surfaces, after a brief exposure to the air, become coated with a thin film of oxide-insoluble in waterwhich adheres tensciously, forming a protective coating to the underlying zinc. So long as the zinc surface remains intact, the underlying metal is protected from corrosive action, but a mechanical or other injury to the zinc coating, that exposes the metal beneath In the presence of moisture, causes a very rapid corrosion to be inaugurated, the galvanic action being changed from the zinc positive to zinc negative, and the iron as the positive element in the circuit is corroded instead of the zinc. When galvanized Iron is immersed in a corrosive liquid, the zinc is attacked in preference to the iron, provided both the exposed parts of the iron and the protected parts are immersed in the liquid. The zinc has not the same protective quality when the liquid is sprinkled over the surface and remains in isolated drops. Sea air, being charged with saline matters, is very destructive to galvanized surfaces, forming a soluble chloride by its action. As zlnc is one of the metals most readily attacked by acids, ordinary galvanized iron is not suitable for positions where it is to be much exposed to an atmos-

phere charged with acids sent into the air by some manufactories, or to the sulphuric acid fumes found in the products of combustion of rolling mills, iron, glass and gas works, &2., and yet we see engineers of note covering, in important building, with corrugated and other sheets of fron and using galvanized iron tie rods, angles and other construction shapes, in blind contidence of the protective power of the zinc coating; else in supreme indifference as to the future consequences and catastrophes that arise from their unexpected failure.

The comparative inertia of lead to the chemical action of many acida has led to the contention that it should form as good if not a better protection to iron than zinc, but in practice it is found to be deficient as a protective coating against corrosion. A piece of lead coated iron or terne plate placed in water will show deelded evidences of corrosion in 24 hours. This is to be attributed to the porous nature of the coating, whether it is applied by the hot or wet (acid) process. The lead does not bond to the plate as well as either of the other metals, zine, tin, copper or any alloys of them. The usual weight of lead conted terne plates is about 4 ounce to a square foot, while hot process zinc coatings weigh from 11 ounces minimum to 3 ounces maximum, depending upon the temperature of the bath, and the slowness of removal therefrom giving time for the article to drain off. The following table gives the increase in weight of different articles due to hot galvanizing:

Description of article.	Weight of zinc per square foot.	Percentage of increase of weight.
Thin sheet iron = 0.026 inch No. 22 B. W. G	1.196 ounces. 1.76 onnces. 2.19 ounces.	18.2 2.0 6.72 1.00

Tin is often added to the hot bath for the purpose of obtaining a smoother surface and larger spangles or facets, but it is found to shorten the life of the protective coating considerably. A portion of a zinc coating applied by the hot process was found to be very brittle, breaking when attempts were made to bend it; the average thickness of the coating was 0.015 inch.

An analysis gave the following re-

TinIron	 2.20 3.78
ArsenicZinc (by difference	 I THEE

A small quantity of iron is dissolved from all the articles placed in the molten zinc bath, and a dross is formed amounting in many cases to 25 per cent. of the whole amount of zinc used. This zinc-iron alloy is very brittle and contains by analysis 6 per cent. of iron and is used to cast small art ornaments from. A hot galvanizing plant having a bath capacity of 10 x 4 feet by 4 feet 6 inches outside dimensions, and about 1 inch in thickness, will cost \$625 and will hold 28 long tons of zinc, which at 4 cents per pound will require \$2500 to fill it. The heating of this mass of metal and its ever changing cold immersions, with the waste by dross and extra thickness in spots, is a constant source of annoyance and expense.

The cost of an electro-chemical or wet bath Cowper-Coles plant of 6700 gallons bath, size 30 x 6 feet by 7 feet, will be but slightly more than the hot bath given. There is no dross formed by the use of the Cowper-Coles process, and the zinc coating formed is said to resist the corroding action of a saturated solution of copper sulphate—English Post Office test for telegraph whre—much better than hot galvanized iron wire, as per following table:

Result of Process Test Made on Samples of Charcoat Iron Wire Coated With Zinc by Various Processes.

Process used to test the iron.	Grains of zinc per square foot.	Ounces per square foot.	Number of one- menute dips; samples stood without show- ing metallic copper.
Hot galvanized	648 5 446.4 552,64	1.02	3 4 5

A Cowper-Coles process bath of a capacity of about 4000 gallons will treat ship plates 18 feet long, and will require an electrical energy of 2000 ampères of 5-volt electro-motive force.

With equal amounts of zinc per unit of area, the zinc coating put on by the cold process is more resistant to the corroding action of a saturated solution of copper sulphate than is the case with steel coated by the ordinary hot galvanizing process; or, to put it ln snother form, articles coated by the cold process should have an equally long life under the same conditions of exposure that hot galvanized articles are exposed to, and with less zinc than wou'd be necessary in the ordinary hot process. The hardness of a zinc surface is a matter of some importance. With this object in view, aluminum has been added from a separate crucible to the molten zinc at the moment of dipping the article to be zinced, so as to form a com-pound surface of zinco-aluminum, and to reduce the ashes formed from the protective coverings of sal ammoniac, fat, glycerine, &c. The addition of the aluminum also reduces the thickness of

the costing applied.

Cold and hot galvanized plates appear to stand abrasion equally well. The thickness of the coating being the same, tests by means of the Schlerometer show: cold galvanized sheet, 6°; terne plate, 2°; tin plate, 2°. The figures represent the load in grams upon a diamond point, just sufficient to cause it to acratch the specimen. The attempts to electro-zinc iron and steel wire for wire standing rigging, bridge, or other eables have not been successful; it has not been found practical to produce a wire capable of withstanding more than one immersion in a copper aulphate

solution.

Both pickling and hot galvanizing reduce the strength, distort and render brittle iron and steel wires of small sections. Zinc fuses at 775° F, and the bath is usually kept at about 1000° F. Steel wire of high breaking strein has its hardness, and consequently its ultimate tensile strength and elongational efficiency, reduced by drawing of the temper and the formation of an iron zinc alloy on the surface of the wire, by as much as from 5 to 10 per cent. It is the practice when coating steel wire to keep the bath at as low heat as possible and to run the wire through it at a high rate of speed. Both

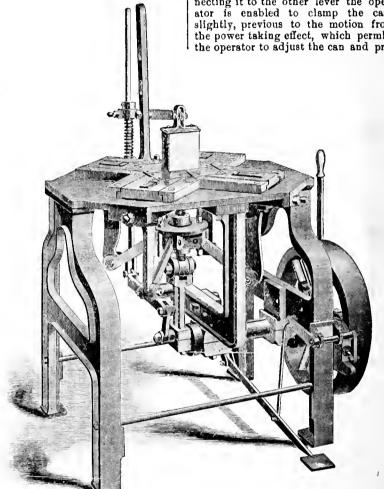
these operations lead to a waste of zinc by reason of the rapid solidification of the metal on the comparatively cold wire, and consequently the ready breaking or cracking off of the covering metal on bending or twisting it, owing to the difficulty with which molten zinc adheres to the steel except after long coutact in the bath. In some cases the wire is wiped between asbestos rubbers as it leaves the bath, but wire thus treated is found to resist corrosion but a very short time.

The English manufacturers have ceased galvanizing their high grade steel wire that cost some \$175 per ton, on account of the great risk of rendering it worthless, which is clearly a disadvantage,

calculated that it would take between \$17,000 and \$25,000 to transport the dragon to Tokio.

#### Power Squeezers.

The illustration presented herewith shows a power squeezer for can makers' use, made by G. A. Crosby & Co., Chicago, Ill. The bed or top of the machine is level or flush with the top of the jaws and center block, thua permitting the operator to slide the cans along without the ends of the cans coming off, as there is no obstruction, such as screw heads, &c., in the way. The improved foot motion is not shown in the cut, but it is so arranged that by moving one bolt from the lever and connecting it to the other lever the operator is enabled to clamp the cans slightly, previous to the motion from the power taking effect, which permits the operator to adjust the can and pre-



Power Squeezers.

although the advisability of protecting the steel is unquestionable, as corrosion is found to be very marked on the lnner strands of ropes or cables formed from uncoated whres. The Cowper-Coles or cold galvanizing process is in operation at the works of Messrs. Laird Bros., Birkenhead, England, and used for the purpose of zincing the skin plates and frames of the torpedo boats and torpedo boat destroyers built by them for the English Navy.

The Miyako Shimbun, a Japanese journal, describes an extraordinary work of art, of great age, now in Corea. This is the image of a dragon, most skillfully sculptured in sospstone, the size being quite that of an ordinary dwelling house. The huge figure is carved with special attention to details, and its like is not to be found in any Eastern land. A Japanese of means contracted last month to buy this giant eurlo, the owner asking only \$2550 for it. It was

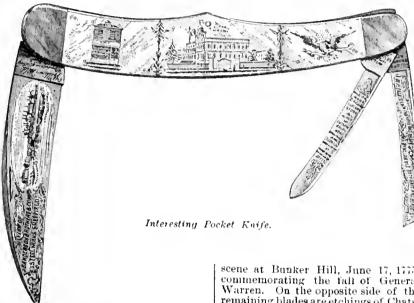
vents the spoiling of many packages. This feature is referred to as being particularly valuable when beginning on a new size of can. This attachment can be quickly disconnected when not required. All the jaws and center blocks made by the firm are to templets, so that they will be interchangeable with any other squeezers of Messrs. Crosby & Co.'s make. The machine is equipped with their patent automatic stop motion, which is so arranged that the jaws always atop open at the end of each revolution. The machine is made in two sizes, of 900 and 1200 pounds weight.

The possible value of waste products has never been more strikingly illustrated than in the case of cotton seed. Twenty years ago the Southern planters used to pay men to haul it away and burn it. Now they are getting from \$6 to \$8 a ton for cotton seed, which is pressed for the extraction of oil.

# THE RETAIL STORE.

#### An Elaborate Knife.

[Several interesting pieces of Cutlery recently came to our notice, one of which is here illustrated. These were made by William Wild, Sheffield and New York, and by him used for display purposes. They are delineating the unfinished Capitol at Washington; the new British Houses of Parliament on the banks of the Thames, London, and Newstead Abbey, Nottingham, the family seat of the Byrons, and where the early years of the poet Byron were spent. On the reverse of the large blade is etched a battle

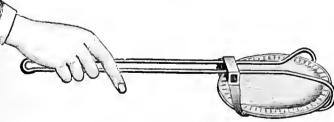


now in the possession of White, Van Glahn & Co., successors to the old house of W. N. Seymonr & Co. Chatham square, New York, into whose possession they came more than 30 years ago. The three-blade Knife here shown was part of the World's Fair exhibit in 1853, at the Crystal Palace, in what is now Bryant Park on Fifth avenue, New York. When open the Knife is 3314 inches over all, the handle being 1534 inches in length. Between the German silver bolsters there is a mother of pearl covering on each side, divided into three sections, the joints being hidden or disguised by the engravings of leaves. In the first section

scene at Bunker Hill, June 17, 1775-commemorating the fall of General Warren. On the opposite side of the remaining blades are etchings of Chatsworth Park, England, depicting among other things a stately building with large grounds. A smaller Knife of a more modest character, 1314 inches extreme length, is similarly etched and engraved, the eagle and stars, if any significance attaches to them, indicating that the Knife was made prior to 1836. The remaining curio is a German silver fob, with mother of pearl sides in four sections, in the four corners of which are ten miniature Knife blades, Saws, Hooks, Watch Keys, &c.

#### The Safety Grip Lifter.

The Safety Grlp Lifter shown herewith is made in two pieces; \$\frac{a}{2}\$-inch steel wire bent to shape, forming the



The Safety Grip Lifter.

at the left is a reproduction of the New York warehouse of William Wild. on Division street between Ludlow and Essex streets, where these emblems of trade were kept in the show window. The central engraving represents the New York City Hall, surrounded by the high iron fence taken down in the 70's under the Tweed regime. Above the eagle on the right are 27 stars, which probably indicated the number of States in the Union when the Knife was made, which would fix the date as 1845, on the admission of Florida. On the reverse of the handle the engravings are more elaborate in character,

front arms and handle, upon which the back arms, made of east iron, readily slide. The lifter is designed to remove hot dishes without injury to the hands. The maker states that the lifter will hold a bowl, plate or dish, either round or square, and that the article to be moved cannot possibly detach itself from the lifter. In operation the forward arms are placed under the plate, when the movable back arms are slid forward until a firm hold is obtained. The Lifter is offered by George W. Hobbs, 111 Main atreet, Charlestown, Mass.

#### The Iceland Freezer.

The accompanying cut represents an entirely new freezer put on the market for the season of 1894-95 by the Peerless Freezer Company, Cincinnati, Ohio. It is explained that the tub and can are of similar quality as their Peerless freezers, and that the dasher is what is known as the leaf form with a wood scraper attachment. The tops and bottoms of the cans are composed of iron heavily galvanized, obviating, it is remarked, liability of their becoming dented or becoming filled with pin holes, as is apt to be the case with

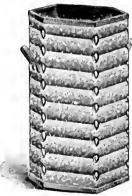


The lecland Freezer.

the ordinary tin tops and bottoms. The gearing is completely covered above and below, concealing it from view, insuring cleanliness and adding to the appearance of the freezer. The company state that important improvements have also been made on their line of Peerless freezers.

#### Corrugated Ash Can.

Illustrated herewith is a corrugated ash can put on the market by the E. E. Souther Iron Company, St. Louis, Mo. The can is hexagon in shape, and this feature is claimed by the manufacturers to be a valuable one, as it absolutely



Corrugated Ash Can.

prevents denting, no matter how hard the usage the can is obliged to stand. It is pointed out that as the can is made of galvanized corrugated fron this renders it practically indestructible, and that with ordinary usage it will last a lifetime. The handles are securely fastened, and the entire can is made unusually strong.

#### The New Rochester Lamp.

The Rochester Lamp Company, 42 Park place and 37 Barclay atreet, New



Fig. 1 .- Chimney Lift.

York, are placing upon the market a lamp embodying the improvements il-lustrated in the accompanying cuts. Fig. 1 shows the new chimney lift, so-called, on the lamp By this device the lamp can be lighted without taking off the chimney. The whole top part of

lighted, when it can be dropped into

place ready for burning.

Fig. 2 is a section of the burner showing the perforated cone or thimble with double deflector, which is slipped over the outside of the air tube, a sectional view of the cone also being shown in Fig. 6. The lower rim of metal seen about ‡ inch below the top of cut deflects a portion of the air rushing up the tube and forces it into the flame. The upper deflector, the top of



Fig. 2.-Perforated Cone or Thimble, with Double Deflector.

guard, which has oblique oval openings to prevent crusted wick, flies, &c., from accumulating in what came to be known as a dirt pocket in the old pattern, the particles absorbing oil and



Fig. 3. - Wick and Wick Sleeve.

which is also perforated, feeds into the | emitting an odor when the lamp was tlame fresh supplies of oxygen, thus | burning.



Fig. 4.—Putting on the Wick.

Weng ng

Fig. 5.—Wick in Place.

madeindependent of the remainder of the burner, and lifts up so as to expose the



Fig. 6.-New Rochester Stock Lamp.

wick, which can be easily lighted from under the chimney holder. Provision la also made for locking the top part of the burner up, so that it will remain in position with the wick exposed until

Another Improvement in the lamp is consuming any gas which may have Another improvement in the lamp is eacaped below. This illustration also the draw bar or wick lift. This is



Fig. 7.-Table Lamp with Handles,

brings out clearly a radical improve-ment known as a perforated raised dirt | lamp, Fig. 3. The wick sleeve is made

in two longitudinal sections, hinged together near the lower end of the sleeve. Around the top edge of each section are points for holding the wick In putting on a new wick the sleeve is

closed at the top, as shown in Fig. 4.

The wick is then slipped over the sleeve, and as the sleeve is slipped over the central draft tube with wick surrounding it, the sections of the sleeve expand and the points at once enter the expand and the points at once enter the wick and firmly hold it in place, as shown in Fig. 5. The wick is lowered into the lamp and the burner screwed on in position. Fig. 6 shows the New Rochester stock lamp, with the inside mechanism clearly represented. The cone slips over the outside of the air tube, thus preventing any required. weeping-a technical term to designate the siphoning out of the oil over the top and down the inside of the air tube. In Fig. 7 is shown one of the popular styles of the New Rochester table lamp, with handles.

The New Rochester is made in a large number of different designs, but all having the same burner. This lamp is now made under the direct super-vision of the Rochester Lamp Company, at Bridgeport, Conn., and an exceedingly full line of samples is displayed at their capacious salesrooms in New York.

#### Parker's Victor One-Pound Mill.

The cut here shown is of a 1-pound coffee mill, put on the market by The



The Bellaire Stamping Company, Harvey, Ill., are now putting on the market a desirable line of decorated tea and coffee pots finished in blue, plum and chocolate colored enamel, with



Decorated Tea and Coffee Pots.

white ensuel inside. An example of the line is illustrated in the accompanying cut. The decorations are "hand work" of a new character, employing enamel colors so that the design stands out from the surface of the ware, giving a unique and pleasing appearance. The goods are finished with cnameled wood handles, preventing

Parker's Victor One-Pound Mill.

Charles Parker Company, Mcriden, Conn., and 97 Chambers street, New York. The body of the mill is of light wood in natural finish, surmounted by metal in copper bronze finish.
The receptacle to receive the ground coffee is of japanned tin, resting on an arm attached to the door, so that it is drawn forward when the door is opened. The hopper is of a size to contain a pound of unground coffee. The manufacturers remark that the mill is a rapid grinder; that it is well made throughout, and that it is attractive in appearance.

heating, and the covers and other metal trimmings are of heavy brass, nickel plated. A catalogue descriptive of these goods with prices will be sent on application, aed the firm are prepared to furnish special catalogues illustrating the goods in colors.

#### MEMORANDA.

THE ROME MEG. COMPANY, Rome, N. Y., are issuing circulars calling attention to the Rome nickel plated copper tea and coffee pots, 300 series. The illustrations show very neat and attract-

ive looking articles, and the accompanying text explains that the pot is made with wooden handle, wire tops, with sponts and lids attached to the inside of the pot and cover full size of top. The teapots are made in 3, 4, 5 and 6 pint sizes, and the coffee pots in similar sizes.

THE STOVE STORE Of Charles S. Stevens, Cedarville, N. J., was destroyed by fire on December 5.

THE ILLUSTRATED CATALOGUE AND PRICE LIST FOR 1895 Issued by the Wisconsin Refrigerator Company of Enu Claire, Wis.. is a nest volume of 30 odd pages, bound in heavy manila paper. In a note with which this seventh annual publication of the compacy is prefaced, particular attention is directed to the Wisconsin Pecrlesa refrigerator, the meritorious features of which are emphasized. The reasons for the superiority of this refrigerator are given at full length a little later on, and then comes the catalogue proper, with illustrations of the several styles. Sectional views in the beginning show the construction of the refrigerator, and later general views are presented of a large number of different sizes and styles of the Wisconsin Pecrless. They show refrigerators of the plainer sort adapted to household use, and others of more elaborate design; also grocers' and butchers' refrigerators and several styles of sideboard refrigerators, as well as ice chests.

THE DOMESTIC OIL CAN COMPANY, Canton, Ohio. issue an attractive circular and catalogue of their manufactures. The oil cans illustrated are the Domestic, the Royal and the Imperial. A pretty half tone engraving shows a child filling a lamp with the Domestic can, and the point is emphasized that there are the property of applies a drop of oil is no danger of spilling a drop of oil.

These various cans are made in several

GEORGE W. Fox, Trenton, N. J., has his store located at the corner of two streets and uses almost his entire wall exposure for show windows for the display of tin and copper utensils of every description, as well as stoves for oil and gas, all of which are attractively presented.

An inonmonger, tays an English journal, had occasion to take a lady customer into the show room where shrouds were kept, and she, evidently noticing the boxes marked "Lawn Robes," said, in an inquiring tone, "I didn't know that you kept 'tennis robes.' What are they like?" Needless to say, when the ironmonger explained she did not ask for any further information. An inonmonger, tays an English information.

A NEW ADVERTISING SCHEME has been perpetrated on New Yorkers by a Broadway merchant. The large plate glass in the front show window has apparently been shattered by stone throwing. On the glass is displayed an offer of \$1000 reward on the firm's letter head for the arrest and conviction of the person who threw the missile. closer inspection reveals the fact that pieces of window glass have been fast-ened ingeniously to the inside of the plate, radiating from an irregular hole 5 or 6 inches in diameter, over which is pasted a piece of manila paper. The illusion is kept up by streaks of a pale green color, resembling cracks, reaching to the sides of the glass. The object, naturally, is incidentally to get the pedestrian's attention to the goods in the window.

# TIN PLATES.

### The Morton Tin Plate Company.

About the middle of last June a party of gentlemen met at Cambridge, Ohio, and discussed the advisability of build ing a tin mitl. It was decided to take chances in regard to tariff legislation and commence the erection of a plant. The company was named the Morton Tin Plate Company, as the site selected was on the Morton estate. On July 5 articles of incorporation were issued, and the following officers were elected : John W. Marquand, president; Chas. L. Campbell, vice-president and treas-urer; John C. Beckett, secretary; A. Beard, Jr., general manager, and John C. Morton, director. About 75 acres of the Morton estate were purchased, and 220 lots were laid out in the part of it known as the Cambridge Fair Grounds. These lots were sold to the people of Cambridge at a common price of \$120 each. After five monthly payments had been made the lots were distributed and the arrangement gave general satisfaction. The tin mill company receive a handsome profit on the undertaking, and the lots are deeded to a trustee until all parties to the agreement have filled their contract.

The location is at the junction of the Cleveland & Marietta Railroad and the Baltimore & Ohlo, each road having tracks on either side of the building, which is elevated to the level of the

floors of cars.

The building of this plant presents a remarkable illustration of what can be done with push and energy. Ground was broken on August 20, and the work has been accomplished by a body of workmen who were, with one exception, inexperienced in the work performed. Notwithstanding this fact the result has given perfect satisfaction to the projectors, and the plant is modern in every particular. Every plece of machinery and all other material is new, nothing second hand being used.

The plant consists of three hot mills for black plates driven direct by a Hamilton Corliss engine 32 x 60 inches. Also three stands of cold rolls, with foundations already laid to double this capacity, which is now 2000 boxes per week. All the machinery is placed under one large building 200 x 130 feet, and the only outbuilding is a blacksmith and carpenter shop combined.

The building, constructed of iron and steel, was furnished by the Wrought Iron Bridge Company, Canton, Ohio.
Two engines, one 32 x 60 inches and

Two engines, one 32 x 60 inches and one 24 x 48 inches, were furnished by the Hooven, Owens & Renstachler Company, Hamilton, Ohio.

The boilers (return tubular) were bullt by the Eric City Iron Works, Erie, Pa. The Leechburg Foundry & Machine Works, Pittsburgh, Pa., furnished three stands of hot rolls 24 x 32 inches, and three stands of cold rolls 20 x 32 inches, three doubling shears, two vertical trimming shears, one roll lathe and one Mesta patent pickling machine; 650,000 brick were used in the foundations and boiler settings.

If nothing interferes some trial heats

of black plates will be rolled about December 17, and every detail of the construction will be completed six months from the time when the projectors held their first meeting. The plant was designed by and erected under the personal supervision of A. Beard, Jr., General Manager. The company will shortly commence to build a tinning house.

#### Tin Mines of Australasla.

United States Consul General Diniel W. Maratta, at Melbourne, Australia, in a recent report to the State Department on the mining industries of Australasia, gives the following information in regard to the production of tin in that region:

#### New South Wales.

In New South Wales, within the past few years, large quantities of tin have been discovered. The area in which this mineral is found is estimated at 8500 square miles, the principal source of supply being in the beds of rivers and creeks (stream tin). Small quantities are also found in veins and lodes. In 1892 the output of tin from the New South Wales fields was 3492 tons, valued at \$1,529,735.

#### Queensland.

In Queensland the principal tin mines are found in Herberton, Stanthorpe and Cooktown districts, near the Northeast coast of the colony. It is thought by many geologists that this metal will be found to be almost inexhaustible in Queensland. In 1892 the output was 2389 tons, of the value of \$599,487.

#### Victoria.

The tin mines of Victoria only produced  $52\frac{3}{4}$  tons of ore during the year 1892. The Eldorado Mine contributed most of this.

#### Tasmania.

The most valuable product of the colony of Tasmania is tin, which, to a certain extent, rules the tin market of the world. From 1873 to 1890, inclusive, 53,874 tons of metallic tin and 6414 tons of ore were exported from the colony. R. M. Johnson, F.L.S., the Government statist, states that the yield of metallic tin up to the present time would represent a column as high as Mount Wellington (4166 feet) and nearly 8 feet square.

#### Tasmania Tin Credited to Australia.

The greater portion of the tin produced in Queensland and Tasmania is usually returned as the product of New South Wales, owing to the fact that the two former colonies ship the greater part of their tin to New South Wales, whence it is shipped to England, together with the tin actually produced in that colony. This has the effect of exaggerating the actual yield of tin in New South Wales, and diminishes the importance of the tin production of Tasmania and Queensland. The following

table will show the false position in which the colony of Tasmania is placed:

Value of Imports, by Countries, of Tin Into the United Kingdom and the Actual Exports From Countries of Production in the Year 1893:

Country. Straits Settle.	Nominal Imports.	Actuat exports.
ments	\$6,541,558.44	\$6,541,558.44
New South Wales Tasmania	3,208,903.16 118,629.20	1,130,838.35 1,741,448.69
Queensland Alt other coun-	135,883.05	759,597.26
tries	612,107.76	443,638.87

Total...... \$10,617,081.61 \$10,617,081.61

Of the 324,023 tons of metallic tln imported into the United Kingdom from 1877 to 1890, inclusive, Tasmania produced 58,242 tons, or nearly 18 per cent., and therefore atanda next to the Straits Settlements as the most important tin producing country of the world.

#### Principal Mines.

The most important tin mine in Tasmania is the Mount Bischoff, at Waratah, in the northwestern part of the colony. The mine was discovered by James Smith in 1871, and at the present time produces one-half the tin product of Tasmania. The other mines are the Arba and "A. J. J.," at Branxholm; Kruska Bros. and Black Boy, at Ringarooma; Blue River and Ruby Flat, at George's Bay, on the east coast, and a number of smaller claims. Tin has recently been found on the west coast, in the Mount Zeehan district.

#### SCRAP.

THE FORD & DONNELLY FOUNDRY COMPANY, Kokomo, Ind., are reported to have considerably increased their working force for the manufacture of the tln plate machinery they are putting in at Atlanta, Montpelier, Anderson, Gas City and other Indiana works. They have just completed a shipment of four additional tinning pots and four tubular boilers to the Atlanta Steel & Tin Plate Company, Atlanta, Ind.

THE WELSH TIN PLATE SITUATION continues to be critical. Representatives of the tin plate workers had a conference with the manufacturers at Llanelly, Wales, last week, at which the former declared their unwillingness not only to accept the reduction of 25 per cent. in their wages, but even to make any concession at all. They offered, however, to stop work one week in every four in order to reduce the stocks, but the employers replied that this would simply increase the cost of production, which at present was greater than they could bear, and tend to throw the trade into the hands of the American makers. The London Iron and Steel Trades Journal states that nearly all the tin plate works in South Wales are going on day to day contracts, and it is expected that unless the men either submit to a reduction in wages or make a concession in the number of boxes turned out the manufacturers will suspend operations, throwing a large number of workers out of employment.

THAT TIN PLATE PROPERTY in England is not looked upon just now as desirable investment was proved at the recent auction sale of the Abercarne Iron & Tin Plate Works, Abercarne, Monmouthshire. These works, which are situated about 10 miles from Newport, are held under a lease, having an unexpired term of 42 years, at a ground rent of about \$2000 a year. They consist of four works, viz: the Lower or Old Works, having four tin plate mills (one works, naving icur tin plate mills (one of which is driven by water power) and the other necessary auxiliary plant; and the Upper or New Works, having a forge, five tin plate mills and the other auxiliary plant. There are also a manager's house and eight cottages, vitrol works and gas works. The vitriol works and gas works. The works are well provided with railway accommodation and the water rights are an important feature. In accordance with instructions from the executors of the late owner, Daniel Whltehouse, the whole property was placed at auction last week. The bidding was very slow, mounting up to only \$50,000, a sum which was considerably below the re-serve price. The property was consequently withdrawn.

THE BALTIMORE IRON, STEEL & TIN PLATE COMPANY, Locust Point, Baltimore, Md., whose works have been closed down for some time owing to a dispute as to the wage scale, have issued a notice to their former employees that work will be resumed next Monday. All the former workmen will be received back who agree to the new rates proposed, which embrace a re-duction of about 25 per cent.

WE ARE ADVISED by cable from London that the management of the Morewood Tin Plate Works, at Llanelly, Wales, have accepted their workmen's offer to continue at a 10 per cent, reduction in wages.

ARTHUR MORGAN, formerly with the American Tin Plate Company, Elwood, Ind., and more recently superintendent of the tinning plant of the St. Louis Stamping Company, has been appointed auperintendent of the tinning department of the Atlanta Steel & Tin Plate Company, Atlanta, Ind. Mr. Morgan has had very wide experience in the manufacture of tin plates, both in this country and in Wales.

THE arguments in the equity case of the Amalgamated Association against the United States Iron & Tin Plate Mig. Company, Demmler, Pa., to restrain that concern from operating their plant with non-union men and at a lower scale of wages than was fixed in conference in July last, came up in the courts in Pittaburgh on Monday, the 3d inst. After the bill of the plaintiffs had been recited the court inquired if there was a remedy in equity in personal contracts. The counsel for the plaintifla answered in the affirmative, but the court expressed a doubt, and after a long argument on this point the prayer for a preliminary injunction was withdrawn and a plea for a decree for damages for the wages of the workmen on the contract was substituted. M. M. Garland, president, and J. C. Kilgallou, secretary of the Amslgamated Association, were the only witnesses examined. They related the circumstances of the several conferences M. M. Garland, president, and with the manufacturers and told of the atipulation for a change in the scale contingent on a material reduction in After long arguments by the tariff. both sides the hearing was adjourned, and a decision was expected to be rendered later.

#### Drawback Rates.

The Treasury Department has issued a synopsis of all the decisions rendered during the past few years in regard to drawback rates. We print below those likely to be of interest to the readers of The Metal Worker

The Metal Worker:

Agate Iron Ware: manufactured by the Lalance & Grosjenn Mfg. Company of Woodhaven, N. Y., from imported sheet iron, same as duty paid. Add to the weight of the sheet iron blanks entering into the manufacture the following percentages of said weight, viz: Add for wastage in cutting: All circular blanks, 21½ per cent.; all oval blanks, 11 per cent. Add for wastage in stumping: All circular blanks for milk boilers, 20 per cent.; all circular blanks for Berlin and convex squeepans, and stove pots and sauce pots, 16 per cent.; and all circular blanks for all other stamped goods, Sper cent. De luct forvalue of scrap resulting from finishing all blanks "spin" and "trimmed." ½ per cent.

Cans and boxes from tin plates, same as duty paid. Quantity to be ascertained as follows: For rectangular 5 gallon cans, allow 258 pounds for each hundred cans (unde from a combination of plates 14 x 20) inches and

allow 258 pounds for each hundred cans (made from a combination of plates 14 x 20 inches, with plates 10 x 20 inches) and for each hundred cans made from a combination of plates 14 x 194, inches with plates 10 x 20 inches, allow 252 pounds. For cans and boxes of other capacities, add to the weight of the blanks the following percentages: On rectangular

For cans and boxes of other capacities, add to the weight of the blanks the following percentages: On rectangular blanks, 3 per cent.; on body pieces of frustum shaped cans, 7 per cent.; and ou circular, elliptical and oval blanks 15 per cent. When no blanks are furnished, the quantity of tin may be determined by adding 5 per cent, to the surface of finished cans to cover seams and wastage.

When articles entitled to drawback on exportation, made whofly from imported tin or terne plates, and on which no allowance for wastage is to be made, are exported in such condition that their weight may be determined by a United States weigher at the time of exportation, such weight shall be accepted as the basis for the liquidation of the drawback entry.

When 5-gallon tin caus are made from a combination of two plates, each 14 x 1914 inches, with one plate 10 x 20 inches, all standard IC tin plates, the quantity of plate used in their manufacture may be determined by allowing 214 pounds for each can exported; provided that, should the plates used he shown by the records of importation to weigh less than 215 pounds, the rate here fixed shall be correspondingly reduced.

The superficial quantity of tin or terne

pounds, the rate here fixed shall be correspondingly reduced.

The superficial quantity of tin or terne plates used in the manufacture of boxes or cans other than the 5-gallon can above noted, or of other articles made from such plates, may be determined by measurement of the blanks or parts of which the box, can or article is composed, and by the addition to surface quantity of the respective parts, to cover wastage in manufacture, of the following percentages:

uses of tin terne plate, provided that such allowance shall in no case exceed 25 per cent, of the weight of such blanks, except under special instructions from the Department.

When articles are made from uncut plutes or from rectangular blanks ent from plates from which the rough edges have not been trimmed in process of manufacture, no allowance shall be made for wastage.

In case samples of caus or boxes and In case samples of caus or toxes and blanks (when blanks do not so appear in the finished articles that they may be measured; are not furnished by the ex-porter, the quantity of the unterial used may be determined by adding 5 per cent, to the surface measurement of the flato the surface measurement of the fin-ished article, to cover seams and wastage in manufacture.

m manufacture.

Cans, from tin plates, completed, with the exception of soldering (blanks), same as duty paid. The exported quantity determined by a United States weigher.

Cons, cracker, from tin places and glass, same as duty paid. Exported quantity determined by measurement of the pieces

determined by measurement of the pieces before they are put together. Caramel Tins: manufactured by Ginna & Co., New York, from imported tin plate, 14 x 20 inches, weighing 85 pounds per box of 112 sheets, same as duty paid. Allow for every 165 caramel tins exported one sheet of tin plate, size and weight in-dicated above, provided no scrap tin is used.

orrugated Iron roofing, painted, from orrugated Iron roofing, painted, from sheet iron, same as duty paid on the iron. Deduct I per cent, from exported weight on account of weight of the paint, bust I rans, embossed tin trays; manufactured by Leo Schlesinger & Co., same as duty paid; add to weight exported articles, for 13 inch round trays, 22 per cent;

cles, for 13 inch round trays, 22 per cent.; for dust pans, 2 per cent.

Embossed Ton Cuspidors: manufactured by David Block of New York wholly from imported tin plate, same as duty paid. Add to net weight of exported goods 33 per cent.

Embossed Tea Trays: manufactured by Franklin Hallet & Co., Philadelphia, Pa, same as duty paid. For all sizes round and oval trays add 25 per cent. Allow for all sizes, square, oblong and rectauring trays and respondents.

Franklin Hallet & Co., Philadelphia, Pa, same as duty paid. For all sizes round and oval trays add 25 per cent. Allow for all sizes, square, oblong and rectaugular trays equal weight.

Embossed Tin Trays: manufactured by the Palmer Mfg. Company of New York City, same as duty paid. Add to net weight 10-inch round trays, 41 per cent.; 13-inch round trays, 37 per cent.; 14-inch round trays, 37 per cent.; 14-inch round trays, 27 per cent.; 18-inch square trays, 6 per cent.; 11 x 14 oblong trays, 7 per cent.

Galranized Wire Handles to tin cans, made wholly from galvanized wire, No. 9, manufactured from imported spelter, and iron rods, or bars, billets, or blooms, and attached to tin cans, same as duty paid. Allow for each 1000 handles weighing not less than 31 pounds to the 1000, 1.55 pounds of spelter, and, as the case may be, 31 pounds iron rods, or 33 pounds of iron bars, billets, or blooms; and for each 1000 handles weighing not less than 28 pounds to the 1000, 1.4 pounds of spelter and 28 pounds of iron rods, or 31 pounds of iron bars, billets, or blooms.

Lithographic Tin Plates; Manufactured by S. A. Ilsley & Co. of Brooklyn, N.Y., from imported tin plates, same as duty paid. Deduct from net weight exported articles 4.6 per cent. of such weight.

Nestable Dinner Pai's: Manufactured by F. G. O. Ehle & Co. of Buffalo, N. Y., from imported tin plate, same as duty paid. Deduct from gross weight 15 per cent.

The process of placing the colossal bronze statue of William Penn on the top of the tower of the Philadelphia City Hall was completed on November 28, and the figure now stands at the highest elevation of any statue in the world. Alexander Calder, the aculptor of the statue, has protested vigorously against the action of the people in charge of the work in fixing it so that the face of the figure looks toward the northeast instead of the south. claims that the latter position, facing this light, is the only one in which the details can be seen at such a hight. The Commission have, however, overruled his protest.

#### The New Norton Can Factory.

The can factory which has just been erected at Maywood, Ill., by Norton Brothers is a model factory. So many Brothers, is a model factory. So many excellent ideas have been embodied in its construction that it is well worthy of extended description. While it has been built for a special purpose, there are many points in connection with it which will be found of value by manufacturers in other lines. It is somewhat difficult to enumerate all the purposes which have been kept in view by those who planned the factory, but among them are the thorough distribution of natural light, the highest possible comfort of the help, the economical handling of materials, the absolute safety of dies and patterns, the reduction of the fire risk to a minimum, the prevention of stoppages from break downs, close supervision of all departments from the central authority, &c. How well these various matters have been provided for, as well as many other important details in manufacturing economy, will appear in the course of this de-

scription. In the first place, the owners of this establishment have not been hampered by lack of room. They were therefore able to apread out instead of building up in the air. The factory is only two stories high, but it is 243 feet aquare. As will be seen by reference to the accompanying plans, it is built with an open space or court in the center, which is 101 feet square. The various thoors of the factory, therefore, are 71 feet in width, and aggregate over 120,000 feet of floor space. The walls of both the of floor space. The walls of both the exterior and the court side are pierced with windows, placed only about 2 feet apart. In this way, as the ceilings are high, natural light easily penetrates to the center of every room even on the gloom-The basement of the buildiest days. ing is unusually high, as it is not used for manufacturing purposes, the floor of the first atory being over 4 feet from the ground level. This affords room for the passage of shafting or for access to pipes, and also enables the dressing rooms in the courtyard to be constructed with their roofs below the level of the windows of the first floor, so as rot to obstruct the light. The kilns which are seen along one side of the building are used for drying painted and japanued packages, lithographed work, &c., and are built in two tiers on the roof of a tin plate storage house. This house is built of brick, with a roof of 12-inch ateel beams apanned by brick arches, has a cement floor and is heated by hot blast to keep the tin plate from sweating and rusting. The roof of the tin plate storehouse also comes below the level of the windows of the first floor, so as not to obstruct light, and the kilns above are arranged in separate blocks for the same purpose, instead of extending in one unbroken line. The interior walls and ceilings are whitewashed, except in the lithographing and painting rooms, in which the ceilings are painted to prevent dust from failing on the work. The courtyard wails are also whitewashed. shows the pains taken to secure the ut-most amount of natural light.

It has long been the theory of Norton Brothers that the comfort and convenience of employees should be carefully studied by those who employ them. In the arrangement of this factory, therefore, the utmost consideration has been given to the care of the help, with a view to promoting their health and comfort, instilling into their minds the love of order, inculcating cleanliness,

The approach to the factory is therefore made inviting. A fine lawn is arranged in front of it, in the center of which is a fountain surrounded by a large basin holding 125,000 gallons, which serves as a reservoir for fire pur-The employees pass through an arcade, as shown on the plan, into the court. Here they find nicely arranged dressing rooms with rows of wardrobes, each numbered to correspond with the time numbers of the employees. Room is each wardrobe is a drawer. thus provided for wraps or extra garments. As girls are employed to a considerable extent in this factory, separate dressing rooms are provided for them. At one end of each dressing room is a

such as to create an outward flow if a door or window is opened, so that there are no drafts. The care which has been given to the comfort of the employees is highly appreciated, and Norton Brothers believe that the money spent for this purpose has been well invested.

Referring to the plans it will be seen that two fire walls divide each floor into three compartments. These fire walls are pierced by doorways only. The doorways are guarded by sliding doors covered with metal, which are always open, but are weighted on an inclined runway, the weight being released by a fusible plug which melts at a low temperature. They will thus close automatically in case of fire. Automatic sprink-

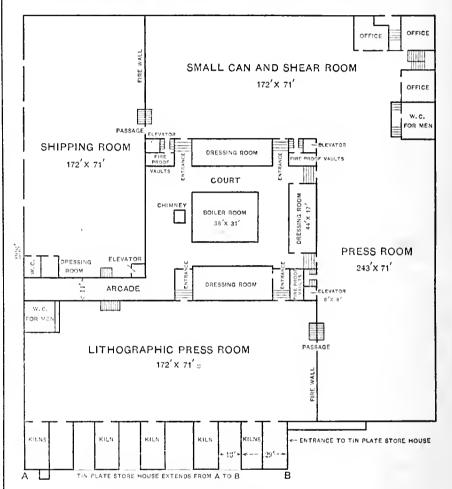


Fig. 1.-Plan of First Floor.

NORTON BROTHERS' FACTORY AT MAYWOOD, ILL.

long slate washstand with a number of hot and cold water faucets, so that the employees can wash before going home. There are no water closets in these dressing rooms. The water closets are arranged in the several departments of the factory, separate closets being provided for the sexes. In each case there are a number of separate compartments fitted up in the most improved modern style of plumbing with automatic time The men'a closets contain flushes. urinals. All the surroundings are of a character to promote cleanliness. ilbors of the closets are cemented so that they can be frequently washed. Special attention has also been paid to heating and ventilation. The entire fac tory is heated by hot blast, a steam coil being placed in each department through which a fan forces a constant aupply of fresh air, provision being made to exhaust the impure air. The pressure of the heated air, however, is

iers are also placed throughout the entire building as an additional safeguard against fire. Elevators are placed in the corners of the court outside of the They are inclosed in brick building. shalts so that they will not form fire conductors. Fire proof vaults are built projecting into the court for the atorage of dies and patterns, a great deal of room for such storage being necessary on account of the variety of work done. A very large fire proof vault is built in the second story immediately over the arched brick roof of the arcade. It is The used for sheet metal patterns. method of storing these is noteworthy. Iron tracks are hung from the celling across the vault from side to side. Wooden racks of heavy frame work are ers. The patterns hang on pins on the racks, filling both sides. The vault is wide enough to permit two racks to hang on each track with a passage of the width of a rack between them. rack can thus be pulled out into the passage to be examined. These racks are asystematically indexed, so that a

pattern can be instantly located.

A system of railroad tracks for narrow trucks connects this factory with the other portions of Norton Brothers' The cars on these tracks are plant. drawn by an electric locomotive operated by storage battery. The buildings connected are the rolling mill and foundry, the tin plate factory and the fruit can factory, all in detached buildings. Tin plates are brought to the new factory on trucks loaded in the tin plate works, and they are then stored in the tin plate storage house or

run to line shafting in one department and to dynamos which supply current for electric motors in other departments, no fire walls being pierced by shafting. The three-wire Edison electric system is used, by means of which incandescent are and power service are secured from the same source About 100 horse-power is used for mechanical purposes. The lighting plant consists of 70 are lights and 560 incandescents, the arc lights being used for large open spaces and incandescents for work around machines and benches. electric plant is not dependent upon the power in this factory alone, as it can be operated from the power plant of the tin plate works if that should be-

OFFICE

W.C. OR ME CAN SOLDERING AND TESTING ROOM TIN SHOP SSAGE ELEVATOR TO WATER TO WATER CAN MAKING FOR MEN ROOM w.c. ARNISH ROO W.C. FOR MEN W.C. FOR GIRLS JAPAN ROOM PA \GE

Fig. 2.-Plan of Second Floor.

NORTON BROTHERS' FACTORY AT MAYWOOD, ILL.

can be drawn on a hydraulic elevator and hoisted to either floor, whence tracks run through the several depart-ments. The arrangement of the factory is such that from the time the tin plates are landed at a presa the work goes constantly forward until it reaches the shipping room, from which it is loaded directly into cars on a track running by the side of the building.

The power for operating the ma-

chinery is furnished by two Babcock & Wilcox boilers, located in the boiler room in the court. One of these is held in reserve, each being capable of running all the machinery. Oil is used for fuel. It is stored some distance from the building and pumped in. The engine room is in a portion of the fac tory opposite the boiler house and con-tains two 150 horse-power Ball compound engines, so connected that they can be run together or separately. Either will do the work required. A jack shaft is used, from which belts are come necessary at any time. This interchangeability of power is also extended to the pumping plant by which water is forced into towers at the corners of the court for operating the aprinkling The pumps take steam either system. from the boilers of this factory or from boilers in other parts of the works.

An admirable system of telephoning has been installed. The several departments of the new factory, as well as the older portions of the plant are connected with a central exchange in the office connecting the 20 telephones. Thus the superintendent can slt at his desk and be put in instant communication with the foreman of any department, with two separate foremen when it becomes necessary for a three cornered conference or investigation. The local wires are further connected with the main office in Chicago and with the whole Chicago telephone service and with the long distance telephone to the leading cities of the country.

The tln scrap made in this factory is utilized on the premises. As rapidly as it accumulates it is collected at a baling press and compressed into small bulk, after which the bales are taken to the foundry and the metal is run into sash weights. The sash weight foundry was started some two years since and has proved to be a very satisfactory channel through which to convert tin scrap into a marketable product.

The products of the new factory cover all kinds of packages made of tin plate except fruit cans, a separate building, heretofore referred to, being devoted to the manufacture of these by the Norton Automatic system. The machinery, therefore, comprises a very great variety of presses for cutting tin plate into the necessary sizes and shapes, gang presses being introduced wherever practicable. Machinery of original design, made in Norton Brothers' machine shop, is used for special operations; but there are, nevertheless, many styles of packages which must be made largely by hand, involving the employment of much skilled labor. In the lithographing and painting department the most elaborate decorations are designed and executed for packages requiring such treatment. Throughout the entire plant the visitor is impressed with the thoroughness with which everything has been done to make the factory as perfect a workshop as possible.

A novel plan for catching trade is mentioned in the Ironmonger as having been adopted by the Arma and Ammunition Mfg. Company, a London cor-poration. Under this plan customers purchasing the goods of the company to any specified amount in one year are presented free with a life assurance policy for the same amount covering the following year. Thus, if a customer buys \$500 worth of goods in 1894, he is given a policy for that amount, valid during 1895, the assurance being great test by the year. ance being guaranteed by a well-known assurance office. The idea is good, and will probably be largely imitated.

The King of the Belgians has offered a prize of \$5000 for the best plan of supplying the city of Brussela with drinking water. The competition is open to all the world.

The aggregate length of telegraph lines in existence throughout the world is computed at 1,069,12 3 miles. total is made up as follows: Europe, 382,937 miles; Asia, 67,875 miles; Africa, 21,687 miles; and Australasia, 47,812 miles. This leaves 548,822 miles for America.

The Canadian Trade Review reports that the subscriptions for the 3 per cent, loan of the Government of the Dominion of Canada have aggregated over \$56,000,000, although the loan only called for \$11,250,000. The min-Imum price was fixed at 95, but the bulk of the loan was subscribed for at an average of 974

During a single month the Western branch of the Hartford Steam Boller Inspection & Insurance Company inspected 13,391 steam boilers and found 11,308 defects, of which 976 were dan-The most important defects were the following: Incruitation, 1903; internal corrosion, 630; deposit of sediment, 840; defective riveting, 1600; leakage, 1656; defective gauges, 525, &c.

### PLUMBING and GAS FITTING.

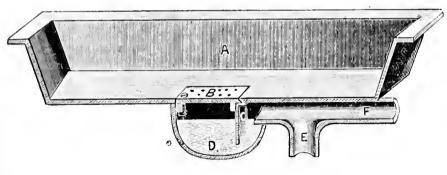
### The National Conventions of Plumbers for Business.

The following letter is received from John Mitchell, president of the National Association of Master Plumbers:

On behalf of the Executive Committee of the National Association of Master Plumbers I have been requested to say through the medium of the trade press a few words to manufacturers and jobbers of plumbing material. It has been noticed at the last two conventions that an imposing association, known as the Knights of Tabasco, have been in attendance. It is to be regretted that at the conventions alluded to there has been considerable jollification on their part. The attendance of these gentlemen, mingling with the delegates from the various fillal associations, has had the effect of diverting the attention of the delegates from the business of the convention. I speak on this aubject with regret, but with the hope that what I may say will not be directed against those courteous and elegant gen-

jobbers sending their agents to confer with the delegates upon any questions, business or otherwise, but it is hoped that when their object shall have been accomplished their mission will end. I am an advocate of harmony and good fellowship between manufacturers and master plumbers, as I have always regarded their interests as identical, and if pursued in a business like manner might result beneficially to both. I have hopes for the conventions of the future and my associates in each of the cities in which they may meet. The proceedings should be conducted orderly and without delay, enabling the return of the members to their homes and vocation.

I was convinced by the last convention at Detroit of the necessity of precluding from the floor of the convention all others than members coming from filial associations. I have, therefore, at the request of the Executive Committee, been delegated to provide to all delegates having proper credentials a ticket of admission. The ticket is to have the name of the delegate for



Cambinatian Sink and Trap.

tlemen connected with the Knights of With entire respect for this Tabasco. large, social and respectable organiza-tion, I regret that there are a few who have given displeasure to the many. feel that the better course to he pursued is to allow the members who have come from long distances at great sacrifice as representatives of their associations to attend to the business of the convention without having any other business to take up their attention than that which they were delegated to look after, and also free from all tendency to intemperance and nonsensical display. Many manufacturers and jobbers may, perhaps, think it is a duty expected of them to send their agents to our conventions in order to secure trade. Such is not the case. Delegates attending the conventions have left such business behind and the manufacturer who hopes for large orders and pecuniary success from the attendance of their representatives will, I think it is safe to say, be disappointed. It is to be hoped that the manufacturers will relleve themselves of the large expense incident to sending their agents to our conventions, as, unfortunately, their time is mostly spent in having a good time and with no resulting financial in-terest to the acuders. Of course, we cannot prevent the manufacturers and whom it is intended, with the name of the national accretary. These tickets will be ready immediately after the report of the Credential Committee and will cause no delay in the order of business, but in the end will facilitate business. By this means it is hoped that only delegates will be admitted to the floor. This proceeding is not intended to interfere with any body of men who wish to attend the sessions, from taking seats in the gallery or any other place set aside for that purpose.

#### Combination Sink and Trap.

Johnston & Meyer, 1606 South Seventh atreet, St. Louis, are placing on the market a combination trap and sink as illustrated herewith. Reference to the cut will indicate the arrangement of the trap. A, shows the sink proper; B, the strainer; C, the rubber valve or seal plate; D, the water in trap, while E and F are the waste and vent. It will be noticed that the sink and trap are all in one piece, being cast in that manner. The manufacturers claim that it is impossible for the trap to hurst, though it may freeze. In addition to pointing out the advantages of a trap that will not burst, the manufacturers also state that the price of the combination trap is about the same as the lead trap.

#### A Plumbers' Smoke.

The Master Plumbers' Association of Paterson, N. J., issued a handsome card inviting their friends to their first "Smoke," held at Helvetia Hall, last Tuesday evenlng, in that city. Invita-tions were sent to the journeymen and helpera, also to the tinsmiths of the city and to their friends in the plumbers' supply trade and to the trade press. The hall was attractively decorated, and the following committee of arrangements received the guests: T. S. Wilson, John Campbell, A. J. Flelding, George Thomas. George P. Whritenour, J. Davenport, J. S. Asbell. The first to arrive were the tinners in a body, headed by the president, Walter Brooks, and accompanied by the Marshal drum and fife corps, who wore badges made of tin by Benjamin F. Gould, one of their mem-bers. The "Smoke" occurred on the same evening as the regular meeting of the Piumbers' Association, who arrived next in a body, headed by President next in a body, headed by Fresident John Hickman and Secretary McNab, accompanied by a band of music. Among the guests were D. A. Crowley, representing the Holland Radiator & Mfg. Company; William G. Kimber, E. O'Brien and Wayland E. Smith, representing the plumbers' supply house of George D. Kimber of Brooklyn; C. V. Haynes, representing the steam and hot water department of Dubois & Darrow; James Watson and J. Males, representing the McNab & Harlin Mig. Company; W. M. Cosgrove, representing the A. A. Griffing Iron Company; W. H. Utz, representing Jenkins Brothers, and Irving S. Davis. The Board of Health of Paterson and Plumbing In-spector McDonald were also present. President Hickman welcomed the guests in an appropriate speech and the entertainment of the evening began with music by the drum corps, which was followed with selections by the string band and a mandolin chorus, a violin solo by George M. Thomas also being rendered. Several of the members favored the gathering with songs, and J. Beggs danced several jigs and clogs. Several of the visitors were introduced by President Hickman, with characteristic remarks, and made entertaining apeeches. During the entertainment clay pipes and tobacco ad libitum were distributed among the guests. Letters of regret were read from John Mitchell, president of the National Association of Master Plumbers and H. C. Coles of the National Association of Master Plumbers and H. G. Gabay of the National Executive Committee, stating that the regular meeting of the New York Master Plumbers' Association prevented their attendance. At the close of the entertainment President Hickman made allusion to the loyalty of the New York Master Plumbers and to the surprisingly large turn out of Paterson plumbers at this meeting, and hoped that as good an attendance would be found at the next meeting of the Paterson master plumbers. He closed his remarks with an invitation for all to proceed to a banquet hall, where an extensive collation was served, and the guests, after manifesting their appreciation of it, de-parted, expressing their delight at the hospitality of the Paterson plumbers.

#### New York Trade School.

The fourteenth season of the New York Trade School, at Sixty-seventh atreet and First avenue, New York, was opened by an assembly of the scholars for the new day classes of the different trades in the lecture room at 3.30 last Thursday afternoon. The plumb ing class, as usual, seems to be the most popular, the day class having 128 scholars and the evening class 106. The carpentry class has 15 scholars, house painting 9, sign painting 15 and brick-laying 11. The large class in plumbing last year was considered by the management somewhat of a disadvantage to those who were in it, and an attempt was made this year to limit the number to 120, but the pressure brought to bear has made it necessary to increase it, as is shown by the total number. On assembling in the lecture room, President R. Fulton Cutting addressed the young men with words of welcome, which were in substance as follows:

#### Address of President Cutting.

I extend to you a cordial welcome to the institution and am glad to see the school so full. In founding this institution Colonel Auchmuty had a bigher end than to aid young men to make dollars. His desire was to make good men as well as good workmen. He appreciated that the honor and success of any country depends upon its young men, and it was his desire to make trades men of them rather than tradesmen. Now that you are bere I hope you will be determined to acquire all possible skill in the manual portion of your trade and thoroughly master the theoretical and technical portions, so that you may not only elevate the trade which you have selected, but also reflect credit on the school. There is reflect credit on the achool. another point to which I would call your attention: That capital composed of money is not the most desirable capital to You are endowed with a capital have. in youth, health and strength that is invaluable, and by industry and integrity you can add to this capital a good reputation, which, as you grow older, you will hold of inestimable value. In talking with an old tradesman recently, he said that he never bid low to get work, but preferred to do each job a little better than the last. I would recommend his example to you, and will again endeavor to impress upon you that the success of your career depends upon your industry and integrity.

Mr. Cutting then introduced John Beatty of the Master Painters' Association.

#### Mr. Beatty's Address.

Mr. Beatty opened by saying, "Fellow Mechanics," and then, asking, "Is that right?" asserted "it will be if you keep on." When I entered the painting trade as a boy I so covered my suit of clothes with paint that my father said that 'as you have selected a dirty trade you have to stick it out therwise I might have been a to it,' otherwise I might have been a plumber. I know a good thing when I see it, and I commend your discernment in selecting the New York Trade School, as I venture to assert that it will exert a strong influence in molding the trades of this country. If you have come to the New York Trade School with the idea of having a gay old time you had better have staid at home. If you intend to learn all you can you could not have selected a better place. I have seen cheek and shrewdness succeed for a time, but your president has given you the key

for a lasting success, in integrity. that follow you in all of the little details of your manual and technical study and life at the dormitory. Do not eonsider that you have learned it all after leaving here, but study the literature of your trades dlligently. Become quick workmen, time yourselves on different work that you do. If you start in doing your best at first you will always do your best. To the plumbers I would say, keep your hands off the relationship. the painters' work if you want to reap blessings instead of maledictions. Another thing, nothing is of greater value to you than your self respect, and this can only be maintained through an absolutely proper life. If you have this you can face all things and no power on earth can keep you from ris-ing. Here you will have the advantage of patient, experienced instructors, and as you accept their teachings and live and work here, so your future life will be. You will find old men all around you who have succeeded, and I will say to you that to acquire the same success in your life you will have a harder struggle, inasmuch as the standard is higher to-day than when I learned the trade. That you can achieve it I have no doubt.

Mr. Cutting then introduced Edward Murphy of the Trades School Committee of the Master Plumbers' Association of New York, the main points of whose address we print below:

#### Address of Mr. Murphy.

I do not address you to urge you to any high deeds, but to assure you that you are here for a very important purpose, and you will be carried from the smallest details of learning your trade to a point higher than can be reached by many journeymen. Further, you will only have a few months for this will only have a few months for this work, and I would impress you with the idea that you should use every moment and effort to profit by coming here. Here you will acquire a very thorough knowledge of the underlying principles for a practice, which, if you put it in operation during your life, will eventually make you a practical plumber and a successful one. The scientific instruction which you will receive in the lectures here is such as is rarely in the reach of an apprentice. When I was a young man of your age I could do with my hands all of the work which you will be able to do when you leave here, but I knew nothing of siphonage, ventilation and all the other scientific portions of the trade which are absolutely necessary to know to-day, and furthermore, I took no interest in them. I would impress upon you that the understanding of these things is quite as important as clean workman-ship, for in understanding the theory and principles of sanitary plumbing lies the success of putting them in practice, and in practical operation they are very important as preventives against danger to the health of the community. During your course, examinations will be made of your handiwork, and examination of what you have learned at the lectures, and if you are worthy at the end of the course you will be presented with a certificate which, through the excellence of the Trade School and the value of its graduates as young workmen, is becoming of increased value each year. See to it that as graduates the standard of value of these certificates is Increased.

Mr. Cutting then introduced A. II. Mackay, and said that Mr. Mackay would be a frequent visitor at the dormitory building during the season, and would be glad to be of use to the young

men in their debates or social life.

The members of the day class in plumbing for this year come from widely different sections of the country, as is shown by the following list:

#### " Day Plumbing Class.

Aug. L. Achard, Gloversville, N. Y. Julius Adler, New York City. George W. Arnold, Sumbury, Pat William H. Bailey, Jr., Troy, N. Y.? William Baily, New York City James G. Barnes, Curtisville, Mass. Francis C. Barnes, Jr., Jersev City, N. J. George Baumann, Jr., Newark, N. J. Howard Baxter, Gloversville, N. Y. Fred. O. Beckler, South Easton, Mass. Charles F. Beil, Swanton, Vt. Samuel Berla, Newark, N. J. Carl E. Berndt, Lameaster, Pa. William Biggs, Wellsboro, Pa. Vincent H. Brady, New York City, Aug. A. Brandes, Newark, N. J. William Branhall, South Deerfield, Mass. Charles E. Burch, New York City, Lonis J. Cherrier, Franklin Falls, N. H. Frank A. Clifford, Shamokin, Pa. Andrew Coffey, Charleston, W. Va. Richard J. Conety, Jr., Mountain Top, Pa. Charles T. Congdon, Lowell, Mass.

Richard J. Conety, Jr., Mountain Top, Pa.
Charles T. Congdon, Lowell, Mass.
Cornelius Cregan, Chicago, Ill.
Charles P. Crosby, Bowman Creek, Pa.
Jonns Deuby, Lawrence, Mass.
C. Elmer Dibble, New Haven, Conn.
John E. Dugan, Albany, N. Y.
Havelock Erskine, Winchester, Mass.
Barney S. Fancher, Elmira, N. Y.
Christian A. Friedrich, New York City.
Frank W. Fuller, Gorham, N. II.
Thomas A. Gabb, Cummington, Mass.
Henry T. Garlick, Jr., Montreal, Canada.
Charles H. Gebhart, Charleston, W. Va.
William F. Gibbon, South Norwalk, Conn.
John E. Gibbons, Great Barrington,

William F. Gilbon, South Norwalk, Conn.
John E. Gibbons, Great Barrington,
Mass.
Alfred B. Gleaser, Rockville, Conn.
Harry P. Goodwin, North Marshfield,
Mass.
Edgene W. Goss, Auburn, Maine,
Edward Greenhalge, Blossburg, Pa.
Geo. Gloeckner, New York City.
Cornelius J. Griffin, Brooklyn, N. Y.
Leopold Huensch, New York City.
Elbert Hallett, Flushing, N. Y.
Joseph A. Hayes, Georgetown, Mass.
William Heaney, Newtown, N. Y.
Fred. W. Herrmann, Newark, N. J.
George S. Hickey, Bethel, Vt.
Charles F. Holmes, South Hadley Falls,
Mass.

Charles F. Holmes, South Hadley Falls, Mass.
Charles L. Holt, Lawrence, Mass.
Lewis Hoiles, Honeshale, Pa.
Omar J. Hotaling, Johnstown, N. Y.
Albert H. Howe, New York City.
Robert T. Hullar, Cazenovia, N. Y.
Arthur G. J. Jacobsen, New York City.
Reuben C. Keeler, Litchfield, Conn.
Charles A. Kirby, Harrisburg, Pa.
Edwin H. Klein, Milford, Pa.
Edwin H. Klein, Milford, Pa.
Benhard F. Kokal, Carmi, Ill.
Charles F. Kortright, Florida, N. Y.
Harry E. Kottcamp, York, Pa.
Otto Laursen, Vancouver, Canada.
John H. Lawrence, Corning, N. Y.
Alfred Leech, Los Angeles, Cal.
Louis F. Luderbach, Jr., New Orleans,
La.
Welliam H. Mahla, Nawimpage, N. V.

Louis F. Luderbach, Jr., New Orleans, La.
William H. Mabie, Newburgh, N. Y.
Daniel J. Mahoney, New York City.
James H. Mahoney, New Bedford, Mass.
George W. Malcolm, Pittsfield, Mass.
Charles M. Maloney, Hughesville, Pa.
Joseph Marenelli, New York City.
Albert A. Marshall, Old Saybrook, Conn.
Charles H. Matthes, Lyons, N. Y.
Edward V. McCormick, New Brunswick, N. J.
Thomas McKenzie, Brooklyn, N. Y.
James McMillan, Carbondale, Pa.
Andrew Miller, Schenectady, N. Y.
Alger S. Myers, Fleming, N. Y.
Edward Myers, Mount Vernon, N. Y.
John J. Mulligan, Vicksburg, Miss.
Joseph Nussbann, New York City.
John Oberender, New York City.
William O'Connell, Grand Haven, Mich.
Fred O'Connor, West Bridgewater, Mass.
Samuel Paul, Jr., Stoughton, Mass.
William Fearson, Keene, N. H.
George H. Playter, New York City.
William J. Rees, Peckville, Pa.
William J. Rees, Peckville, Pa.
William J. Rees, Peckville, Pa.
William J. Robbins, Northport, N. Y.
Harry Savidge, Atlantic Highlands, N. J.
George J. Schaaf, Union Hill, N. J.
Adolf G. Schroedter, Newark, N. J.
Wm. H. Schwegler, New York City.
Geo. M. Shepherd, Brooklyn, N. Y.

Joseph P. Sieger, Coplay, Pa.
Frank W. Smith, Norwich, N. Y.
George L. Smith, Lawrence, Mass.
Oscar P. Smith, North Billerica, Mass.
William C. K. Smith, Lisbon, N. Dak.
Benjamin Speth, Westwood, N. J.
Peter G. Spielmann, New York City.
William F. Spokesfield, Plymouth, N. H.
John J. Stansfield, Brooklyn, N. Y.
William B. Stausbury, Lawrence, Mass.
Benjamin Stedeker, New York City.
James D. Stirton, Portage La Frairie,
Manitoba, Canada.
Fred. N. Stout, Forty Fort, Pa.
John J. Sullivan, Long Island City, N. Y.
James A. Switzer, New York City.
Fred E. Talbot, Crown Point, N. Y.
Edward E. Trecartin, Lubec, Maine.
Frank Troy, New York City.
Richard D. Turner, New York City.
Charles Valente, New York City.
Charles Valente, New York City.
George W. Ward, Hoboken, N. J.
William D. Weaver, Berrien Springs,
Mich.
Fred. M. White, Nashua, N. H.

Wilham D. Weaver, Per Mich.
Mich.
Fred. M. White, Nashua, N. H.
Charles H. Whittier, Melrose, Mass.
A. Russell Willard, Cortland, N. Y.
William D. Williams, Litchfield, Conn.
Peter H. Wilson, Litchfield, Conn.
Charles Wolf, Newark, N. J.
Ernest F. Ziegler, Waterbury, Conn.

#### TRAPS AND VENTS.

THE PLUMBERS will agree with the recommendation made in the President's Message for a national Board of Health.

AT A SESSION of the Quincy, Mass., city council, last Monday evening, J. J. Keniley was appointed inspector and J. B. Landers assistant inspector of plumbing.

THE PATERSON HANDLE WORKS, Paterson, N. J., make a specialty of hickory and lignumvitæ turnpins and dressers for plumbers, molders' rammers, boilermskers' mauls, mallets, and all sorts of hammer and sledge handles.

JOSEPH McGILVAREY, West Lynn, Mass., recently austained a losa in his plumbing shop by fire.

THEODORE D. KALBFELD has been appointed Supervisor of Plumbing at St. Louis by the Board of Public Improvements, at a salary of \$2000 per vesr.

A ST. LOUIS JUSTICE recently cut a plumbing bill 50 per cent. in a suit be-fore him, at which the plumber demurred, but the justice looked severe as he rendered the judgment, and said: "You plumbers have a right to collect reasonable charges for your work, but not any more than that." Would that the plumbers could exercise as arbitrary power on the enormous bills charged by the lawyers for the small and often inefficient service rendered.

THE BUSINESS CARD of Thomas S. Wilson, Paterson, N. J., is all plumbing on one side, while the reverse side to the uninitiated is hard to understand.

THE MASTER PLUMBERS of Cleveland, Ohio, are not satisfied with the fact that work in certain large buildlngs of their city is let out to workmen of other cities. At their last regular meeting this theme was fully discussed. In looking up the matter Secretary Bonesteel of the Cleveland Builders' Exchange found that since January 1, 45 new firms have commenced business. This is due to the easy manner in which a license may be obtained. During the summer just past an examination of the license books of the Waterworks Department showed that four firms were working without a license, 12 licenses had been irregularly granted, and 35 men who have managed to get licenses have no shops. In the case of irregular licenses the applications had generally

been signed by men who have no licenses, or have obtained their licenses irregularly. The city ordinance covers the following points in general: It is unlawful for any person to perform the work usually done by plumbers, be it new work or repair work, unless he has a license; nor shall a licensed plumber allow his permit to be used by others in doing any work, unless he be personally on the ground to superintend. Any applicant for a liceuse must furnish a certificate signed by at least two reputable plumbers or sewer builders, according as he may intend to do either kind of work.

A BOARD OF SUPERVISORS in New York State refused to expend \$358 to improve the sanitary condition of their jail and to make needed repairs to the roof, but ratified the action of the Sheriff in offering a reward of \$1000 for catching a firebug.

THE ANNUAL MEETING of the Master Plumbers' Association of Wilmington, Del., was held last week and the following officers were elected: President, James F. Traynor; first vice-president, Charles Stewart; second vice president, Dennis J. Harrington; treasurer, Alfred Gawthrop; secretary, John Greenlee; members of the Conference Committee, B F. Shaw, Isaac N. Eaton, Alfred Gawthrop, John C. Brison and James F. Traynor.

THERE is a suit in Brooklyn over the refusal of the Health Commissioner to accept vitrified pipe for sewer connec tions from some new school buildings. The defendant says that vitrified earthen pipes have been used in that city for years for such sewers and drainage, cast iron pipes being used inside build-The vitrified pipe did not rust nor corrode and was more healthy, and has been used in the public schools for 15 years without objection from the Board of Health. He further deposes that he has supplied the city with vitrified earthen pipe for sewers and drains for 22 years and that it has been used by the city over 30 years.

L. A. GARRETT has opened a plumbing and tinning establishment at Cobleskill, N. Y. He has several hesting and other contracts on hand.

A TAILOR of Boston thawing out a pipe raised the price "out of sight" of plumbers. It will take \$3300 to repair the damage done by the fire he started.

Two PLUMBERS of Minneapolls were brought before the public court for violating the city ordinance by making a water pipe extension without a permit.

THE ALPENA (Mich.) PLUMBERS have formed an association and will endeavor to have the common council of that city pass an ordinance similar to that in force in Detroit, which requires a plumber to pass a satisfactory examination before he is allowed to practice his trade in the city.

ALEXANDER MUSGRAVE has established a plumbing office on Spring atreet, Watertown, Mass., under the firm name of Musgrave & Burke. The firm have just completed an elaborate job in the new house of Mr. Pancoast on Vernon street, Arlington Heights.

A BUFFALO PLUMBER flushed the contents of a privy vault into the sewer and was fined for the violation of the

PEPPERS LOUIS W. GAY of Buffalo, N. Y., and Jules Zimmermsn of Detroit, Mich., were in New York this week, as was Old Pepper Thomas Cushing of the Knights of Tabasco. The

interests of the society did not suffer, though plumbers' supplies and Ideal closet sests and flush tanks were features of their discussions.

THE ALBERENE STONE COMPANY, agents for the Smith & Anthony Company, 219 Like atreet, Chicago, are to furnish 77 Sanitas traps for a new building at Duluth, Minn.

B. C. Berch of the plumbing class of '94 was one of the audience at the opening of the day class in plumbing at the New York Trade School this vear, accompanied by J. Vickers of Vickers & Brooker of Binghamton, N. Y., in whose shop he is working.

I. L. VARIAN has removed his plumbing business to 7 Maple avenue, Daubury, Conn.

J. A. FAIRBANKS & Co., tinsmiths and plumbers, Brewer, Maine, are to remove to Bangor, where they will occupy the new block on the corner of Centre and Harlow streets.

The Paterson Heater Pipe Company, Paterson, N. J., are issuing a catalogue of round and oval heater pipe and elbows with register boxes, heads and col-lars for oval pipe, all of IX tin. They also make floor and side wall register boxes of various sizes. They make a full line of stove pipe and elbows in galvanized, Russis, and black iron of different gauges. They also make a line of plain round leader pipe in both tin and galvanized iron. The shop is tin and galvanized iron. The shop is under the management of Thomas S. Wilson, one of the plumbers of Pater-

We are indebted to W. G. Creamer, 96 John street, New York, for a pamphlet copy of a very interesting address on the ventilation of railroad cars, read before the New England Railroad Club, at Boston, October 10. Mr. Creamer is an expert in car ventilating, having studied it for the past 30 years, and has devised methods of ventilation to overcome the present difficulties. The paper recites the well-known facts of faulty car ventilation, both street car and steam car. Where he mentions that thousands of dollars are expended on the decorations of a sleeping car and little if anything upon giving it proper ventilation, he siludes to a fact of which all travelers are only too well aware. Mr. Creamer explains his appliances and at the end of the pamphlet are views and further description.

N. & G. TAYLOR COMPANY, Philadelphia, are offering to the trade what they call "Roofing Tin in rolls." These are referred to as sheets of Tin thoroughly soldered and painted on one side, ready to put on the roof. They are made in widths of 10, 14, 20 and 28 inches 105 source feet in a roll of IC. inches, 105 square feet in a roll, of IC and IX thickness, and can be furnished in any quality that may be desired, from the Old Style brand of extra costed Roofing Tin down to the cheapest grade. The rolls are referred to as particularly desirable for dealers who keep no timen or for work at a distance, as the Tin is ready for use at a moment's notice. The rolls are in straight lengths and require no resquaring. The seams are said to be well soldered by hand.

The completed portion of the Henne-pin Canai, near Davenport, Iowa, was opened on Thanksglving Day.

### STOVE TRADE NOTES.

### Meeting of Western Stove Makers.

On Tuesday, December 4, most of the large and prominent stove manu facturers, members of the Northwestern and Southwestern branches of the National Association, gathered at the Grand Hotel in Cincinnati. The subject of prices and other important matters were discussed at the preliminary meeting, Tuesday morning, preparatory to bringing certain affairs before the subsequent meeting in the evening, as well as before the annual meeting of the National Association to be held at Chicago.

At the meeting on Tuesday night the matter of freight rates was discussed and fully considered. As is generally known in the trade, stoves in less than carloads have been until recently classified by the transportation companies as third, and in full car lots as fifth class freight, and subject to tariff accordingly. Two weeks ago, however, stoves were transposed into second class, with, of course, a corresponding advance in rates of freight. This change has been regarded, naturally, with disfavor by the manufacturers.

One of the prime objects of the meeting was the sincere desire to harmonize the differences which have heretofore existed between the Southwestern and Northwestern branches of the parent organization. One of the branches, it is stated, has heretofore enjoyed priority because of having first entered the general society, and it has been regarded as desirable to eliminate any source of trouble arising from this fact by mutual concessions and modifications of rules and by-laws.

The subject of prices, however, proved to be the most fertile of any considered, and was the occasion for some hot words among the disputants. The fact that the trust or anti trust laws were run counter to in the attempt to arrange prices would indicate that such a combination was under consideration, or rather that the establishment of uniform prices upon certain classes or grades of castings might be construed by legal ability as in violation of the trust taws which have been enacted recently.

The most important meeting of the series was held on Wednesday afternoon, following a complimentary lunch, tendered the members present by Matthew Addy & Co. The lunch, or rather banquet, was a handsome affair, with flowers and all the other accessories to make the feast enjoyable and pleasant. The toasts were grave and witty and brilliant. James A. Greene of Matthew Addy & Co. occupied the head of the table as host, while Geo. H. Barbour of Detroit was toastmaster. Mr. Addy was presented by the toast-

master in a few fitting remarks and gracefully responded to the acclamations which greeted his introduction. Lyzard Kahn of Hamilton, D. M. Thomas, secretary of the National Association; Grange Sard of Albany, N. Y.; J. W. Van Cleave of St. Louis, J. A. Greene of Clucinnatl, Frederic Gardner of Chicago and W. W. Baldwin of Cleveland responded in turn to the call of the toastmaster, with good words for Mr. Addy, the Queen City and the trade.

After eigars, the entire company joined in singing "Auld Lang Syne."

On Tuesday evening the members were entertained by F. & L. Kahn & Bros. and the S. Obermayer Company jointly, and on Wednesday evening the assembly were the guests of the S. Obermayer Company.

About 50 members arrived on Tuesday, and this number was about doubled before the assembly finally adjourned. The various cities represented were Detroit, Albany, Chicago, St. Louis, Piqua, Vincennes, Zinesville, Quincy, Aurora, Ill.; Cleveland, Muncie, Marietts, Columbus, Hamilton and others.

Geo. D. Dana of St. Louis presided and D. M. Thomas of New York was secretary.

Among the founders were noticed G. H. Barbour and John M. Dwyer of the Michigan Stove Company of Detroit, Lazard Kahn of Hamilton, W. W. Baldwin of Cleveland, Fred. Gardner of Chicago, Grange Sard of Albany, W. H. Cribben of Chicago, A. T. Nye of Marietta, Ollo Kirschner and H. L. Wilton of Detroit, C. L. Collins of Bay City.

#### The Stove Trade of the West.

In the matter of supplies for local markets, says a Denver paper, a marked change acema to be taking place and to be intensified by the duliness that has prevailed during the past year. The average retailer has grown tired of ruinous local through rates, or the equally disastrous policy of overstocking to secure carload rates. The natural tendency of this is to concentrate the trade at important distributing points. For the Pacific Coast the trade is now virtualty controlled by the houses carrying stocks at the different centers, only the largest retailers caring to take the risks of transcontinental freight, breakage, delays, overstocks, loss of interest, &c.

In the region tributary to Denver the same conditions prevail, and how important a stove market our city has become is perhaps not generally under-stood. Aside from a few houses with something of a jobbling trade in stoves, we have one foundry and four branches or exclusive wholesale agencies, equivalent to branches, of Eastern houses, each carrying full general stocks of stoves suited to the market, for prompt shipment from Denver. That these advantages are appreciated by the trade is With one of these quite evident. houses a prominent Eastern manufacturer has lately placed a full line of hot air furnaces, the first exclusively wholesale stock of furnaces carried in Denver.

It all emphasizes the tendency to which we refer—to make this city more and more a distributing point for goods, particularly of this class. Until the West more largely manufactures her own goods, this method of supply must increase, and to every branch or agency so established we bid cordial welcome.

#### The Ohio Stove Trade.

Advices from the stove manufacturera covering trade for the past two weeks are somewhat conflicting in tenor. Most, if not all, of the foundries heard from throughout Ohio refer to a satisfactory trade, and one manufacturer characterizes business during the month of November as more satisfactory than any month during the preceding 18. But from other sections of the Ohio Valley reports are far from reassuring, and one foundryman expresses his realizstion of facts in most emphatic but gloomy terms, the gist of the matter being that trade has dropped off so much in the last four weeks that he can hardly realize that he is doing business at all.

These two views form the extremes of the information under review and between them are various grades of contentment or dissatisfaction, denoting fewer or larger orders for castings and finished stoves. The weather, too, has been changeable, but upon the whole too warm to encourage the placing of orders, and therefore deslers have continued their policy of buying only to cover immediate needs, especially as the holiday season is almost upon us, during which time there is usually a bull

Some of the delayed replies to inquiries aent out two weeks ago were received too late for our last publication. These reports, as a rule, while noting a decline in orders as compared with November, were still of an encouraging nature, being larger than generally anticipated. Some manufacturers are evidently not easily diabeartents and are already making arrangements for bringing out new and improved patterns, and upon these build an expectation of trade which will cause them to double present capacity next year.

Not a few of these anticipations seem to have been well founded, as evinced by the active inquiries being received for agencies of the new stoves already upon the market. Throughout the manufacturing industry the sentiment apparently prevails that the trade of the future will be largely governed by quality, and strenuous efforts are being made to place patterns upon the market re-

markable for strength, durability and convenience, as well as beauty and finish. More and more attention, too, is being paid to the construction of both stoves and furnaces upon sound scientific principles and hygicuic laws.

It seems to be recognized that such attention paid to the output of any foundry will do more than anything else to assure business success when full recuperation has taken place.

#### Cupola Tuyeres.\*- I.

BY DR. EDWARD KIRK.

The cupola furnace may be supplied with the air required for the combustion of the fuel by natural draft induced by a high stack, a vacuum created by a jet of steam, or by a forced blast from a fan or blower. In either case the air is generally admitted to the cupola through openings in the sides near the bottom. These openings are known as tuyerea or tuyere holes. The location, size, number and shape of these tuyeres is a matter of great importance in constructing a cupola, and is a subject to which a great deal of attention has been given by eminent and practical foundrymen for years, and to these men is due the credit for the advancement made in the construction of cupolas.

It is only a few years since 10 to 15 tons was considered a large heat for a cupola, and when a large casting was to be poured two or more cupolas were run at the same time and the greater part of a day consumed in melting. Now 60 tons are melted in one cupola in four hours for light foundry work, and hundreds of tons are melted in one cupola in steel works without dropping the bottom. This improvement in melting is largely due to the improvement in the size, shape and arrangement of tuyeres.

There have been epidemics of tuyere inventing several times in this country in the past 25 years, and during these periods it has been almost impossible for an outsider to get a look into a cupola for fear the great secret of melting would be discovered in the shape of the tuyere and made public. During these epidemics tuyeres of almost every conceivable shape have been placed in cupolas, and great results in melting claimed for them. Many of these tuyeres were soon found to be complicated and impracticable; or the advantage gained by their use in melting was more than offset by extravagant use of fuel.

It would be useless for me to describe all the tuyeres I have seen employed, for many of them were never used out of the foundry in which they were invented, and only used there for a short time. I shall, therefore, describe only a few of those that have been most extensively used or are in use at the present time.

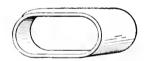
The round tuyere is probably the oldest or first tuyere ever placed in a cupola. It was used in cupolas and blast furnaces in Colonial days in this country, and long before that in France and other countries. In the old fashioned cast iron stone cupolas three round tuyeres were generally placed in a row, one above another, on opposite sides of the cupola. The first or lower tuyere was placed from 18 to 24 inches above the sand bottom, and the others directly over it from 3 to 4 inches apart. The tuyere nozzle or elbow was attached

to the blast pipe by a flexible leather hose, and first placed in the lower tuyere and the two upper tuyeres temporarily closed with clay. When a small heat was melted the nezzle was permitted to remain in the lower tuyere through the heat. But when a large heat was melted and the eupola melted poorly at any part of the heat, or if molten iron was to be collected in the eupola for a large easting, the clay was ramoved from the upper tuyeres, and the nezzle removed from one to the other, as required, and the lower tuyeres closed with clay.

In these cupolas the tuyeres were generally too small to admit a proper volume of blast to do good melting. In one of 28 inches diameter I saw at Jamestown, N. Y., a few weeks ago the original tuyeres were only 3 inches in dismeter. Two tuyeres of this size could not possibly admit a sufficient volume of blast to do good melting in a cupola of the above diameter, and in this one they had been replaced by two of a much larger diameter placed at a lower level than the old ones. The round tuyere is still extensively used in small cupolas where the tuyeres can be made of a diameter not to exceed 5 or 6 inches, but in large cupolas it has generally been replaced by the flat or oval tuyere, which admits the same volume of blast and permits of a smaller amount of fuel being used in the bed than could be used with a round tuyere of large area.

#### Oval Tuyere.

In Fig. 1 is shown the oval or oblong tuyere now extensively used. It is made of different sizes to suit the diameter of cupola, the most common sizes used being 2 x 6, 3 x 8 and 4 x 12 inches. They are laid flat in the lining and generally supplied from an outside belt air chamber. This tuyere is the one most commonly used by stove, bench and other foundries requiring very hot iron for their work. They are placed very low, generally not more than 2 or 3 inches above the sand bottom, and in large cupolas the slope of the bottom



Cupola Tuyeres.-Fig. 1.-Oval Tuyere.

frequently brings it up to the bottom of the tuyeres on the back side of the cupola. This tuyere admits the blast to a cupola as freely as a round tuyere of the same area, and the tendency of the stock to chill over the tuyeres in settling and bridge the cupola is no greater than with a round tuyere of the same capacity. They admit of a lower bed than the round tuyere and are to be preferred to the round form for cupolas requiring tuyeres of large area.

#### Expanded Tuyere.

In Fig. 2 is seen the expanded tuyere, which is made larger at the outlet than at the inlet. It is reducd at the inlet so that the combined tuyere area may correspond with the outlet of the blower and equalize the volume of blast entering the cupola at each tuyere from the air belt. It is expanded at the outlet to permit the blast to escape freely from the tuyere into the cupola, and in case the stock settles in front of the tuyere in such a way ss to close up part of it there may still be sufficient opening for the full volume of

blast entering the tuyere to pass into the cupola. The tuyere is made from 2 to 4 inches wide at the inlet and 6 to 12 inches long. The width of the outlet is the same as that of the inlet, and the length of the outlet is from onefourth to one-half longer than the inlet.



Fig. 2.-Expanded Tuyere.

The tuyere is laid flat in the lining, the same as the oval tuyere, and the only advantage claimed for it over that tuyere is that it cannot be closed so readily by the settling of the stock and chilling of iron or cinder in front of it. The expanded tuyere is preferred by many to the oval tuyere on this account and is extensively used at the present time.

#### Doherty Tuyere.

In Fig. 3 is seen the Doherty arrangement of tuyeres designed by Mr. Doherty of Bement & Doherty, Philadelphia, Pa., and employed in the

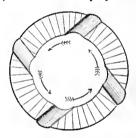


Fig. 3.—Doherty Tuyere.

Doherty cupola, a cupola that was extensively used in Philadelphia about 25 years ago. The arrangement consists of two or more round tuveres placed in the lining and at an angle to it, instead of passing straight through the lining as tuyeres generally do. The blast pipes connecting with each tuyere were placed at the same angle as the tuyere, the object being to give the blast a whirling or spiral motion in the cupols. The blast took the desired course, as could be plainly seen by its action at the charging door, and it had the appearance of making a more intense heat in the cupols than when delivered from the straight tuyere. the appearance was deceptive, and after careful investigation it was found that no saving in fuel was effected or faster or hotter melting done on account of this motion of the blast. The cupola and tuyeres were, however, constructed of proper proportions and were a decided improvement on the small tuyere cupolas in use at that time. Many of them were placed in foundries and are still in use, but no importance is attached to the spiral motion of the blast.

#### Sheet Blast Tuyere.

In Fig. 4 is seen the horizontal slot tuyere. This tuyere consists of a slot



Fig. 4.—Sheet Blast Tuyere.

from 1 to 2 inches wide, extending onethird around the cnpola on each side, or a continuous slot extending all the way around the cupola. The slot is

<sup>\*</sup> Copyrighted 1894 by Edward Kirk.

formed by two east iron plates, on one of which is east separating bars to prevent the plates being pressed together by the weight of the lining or warped by the heat. This tuyere is known as the sheet blast tuyere. It admits of a smaller amount of fuel being used for a bed than any other tuyere placed in a cupola at the same hight above the bottom. It distributes the blast equally to the stock, and does fast and economical melting in short heats. But the tendency of the cupola to bridge is greater than with almost any other tuyere, and a cupola with this tuyere cannot be run successfully for a greater length of time than two hours.

#### Mackenzie Tuyere,

In Fig. 5 is seen the Mackenzie tuy ere, designed by a Mr. Mackenzie of Newark, N. J., and used in the Mackenzie cupola. This is a continuous slot or sheet blast tuyere, but differs from the one just described in that the cupola is boshed and the bosh over-

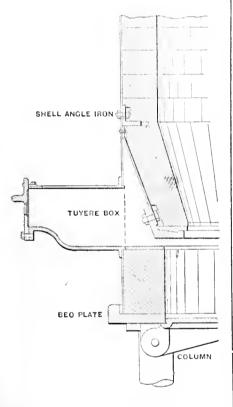


Fig. 5.-Mackenzie Tuyere.

hangs the slot from 4 to 6 inches. The slot is protected by the overhanging bosh and cannot be closed up by the settling of the stock. The Mackenzie cupolas with this tuyerc are constructed of an oval or oblong shape, with an inside belt sir chamber. The blast enters the sir chamber from a tuyere box at each end of the cupola, and passes into the cupola through a 2-inch slot extending all the way around the cupola.

The MUNICIPALITY of Manchester, England, is erecting in one of the leading thoroughfares of the city an imposing building specially designed for the exhibition of the various types of gas appliances and the most recent improvements in gas cooking and heating apparatus, which they are prepared to losn out to their gas using customers. The Manchester corporation own the gas works.

#### "Home Comfort and Steel Ranges"

is the title of a volume of 166 pages which reaches us from the Wrought from Range Company of St. Louis, Mo. The pages measure about 10 The pages measure about 10 x 11 inches, which permits the use of cuts showing the larger sizes of wrought steel ranges as well as the use of a number of cuts to a page in that portion of the estalogue where culinary appliances are illustrated. The catalogue before us gives attention to the Home Comfort wrought steel cooking ranges in almost endless variety, French ranges, steam tables, carving tables, laundry stoves, urns, ovens, &c., sdapted for hotels, restaurants, private dwellings, public institutions, dining cars, steamboats, railroad camps, army posts, &c. In every case sufficient descriptive text is presented to enable the desler to obtain an idea of the principal features of the goods illustrated. The assortment of culinary appllances is extended, covering everything required to make a kitchen outfit complete. A number of Lages are given to miscellaneous hotel goods, as well as hotel cooks' and outchers' cutlery. The company's wrought iron range fire grates are illustrated and described, as well as the Home Comfort furnsee. A long list of names of users of the company's goods judicates in some measure their wide popularity. An alphabetical index covering five pages will be found a valuable feature.

#### New Tropic Vapor Stoves.

Rathbone, Sard & Co., Wabash avenue and Randolph street, Chicago, now exhibit on their sample floor a full line of Tropic gasoline stoves, as pre-paged for the season of 1895. Their pared for the season of 1895. success with new process stoves last year was so gratifying, not a single stove of all they sold having been returned, that they are fully convinced that these stoves have come to stay. Therefore they have this year decided to prepare for the trade a complete line and will make a more vigorous push for their share of the vapor stove business than ever before. A number of new features have been introduced. The tank is made in two parts, with an upper and lower cylinder, for the purpose of equalizing the pressure of gasoline on the valves. With a single cylinder tank, it is pointed out, the pressure gradually diminishes as the tank empties. The valves for regulating the flow from the tank are made so as to be easily cleaned. If the tube below the valve should become clogged a cover can be opened to enable a splint to be run through it. A portion of this tube is made of glass to enable the dripping gasoline to be easily seen. A cast iron collar covers and protects the lower supply pipe so that the flames from the cooking holes cannot atrike the sheet iron pipe. The mixing chamber below the cooking holes is made of heavy polished brass, with a cast iron bottom, to prevent rapid corrosion and make this part of the stove durable. The defects of previous con struction are therefore overcome. The large drip pan below the stove is placed several inches higher from the floor than before, so that the floor beneath can be readily swept. These stoves are very handsomely finished and are ornsmented with nickel plate and polished brass. A very tasteful bickel plated high shelf has been placed under and in front of the tank. The several styles of new process stoves comprise one with three

burners on the top and one on the oven step; another with two top burners and oven step; a third with three top burners and no step, and the fourth with two top burners and no step. In addition to these styles a cast iron cabinet range is made, similar in appearance to a gas range. It has two top burners, a burner under the inclosed oven and a step burner, which gives it large cooking capacity. It is built with a drop oven door, whose motion is controlled by a coiled apring. A full line of junior stoves with individual generators are also presented for the favor of the trade. These are all made with safety tanks. which must be lowered below the level of the burners or they cannot be filled. This feature is highly commended by insurance companies. The high junior stoves are constructed with a folding step so that the stove takes up less floor space when the step is not in use. This line comprises three sizes of low juniors, three sizes of high juniors and two sizes of high juniors with step. The com-plete line of Tropic gasoline stoves cov-ers no less than 19 different sizes and styles. The new estalogue is now very nearly ready for distribution.

#### ODD PLATES.

In our issue of November 24 we referred to the contemplated Introduction of electricity as motive power in the plant of the Round Oak Stove Works, at Dowagiac, Mich. We now learn that the managers of the estate of the late Mr. Beckwith propose running the factory and the electric light plant for commercial lighting from the power thus furnished, and it is expected to be in operation in about 60 days. It has been decided to use what is known as the General Electric Company's three-phase system. The current will be transmitted over three No. 1 copper wires.

The CLEVELAND CO-OPERATIVE STOVE COMPANY, Cleveland, Ohlo, are rebuilding their foundry, which was recently damaged by fire, the new structure being of brick and iron, with slate roof, and equipped with the best known appliances. The company expect to have the new building completed by February 1, but they do not intend to occupy the premises just at present with their own business, as they are now under lease to the Cleveland Foundry Company. The company are, however, reconstructing the foundry building with a view to occupying it later, as the business is rapidly increasing and the additional facilities will be required.

F. V. Knauss, president and general manager of the Portsmouth Stove & Range Company of Portsmouth, Ohlo, recently visited Cincinnati, and during his sojourn called at the office of The Metal Worker in that city. He reports business for the past year more than ordinarily satisfactory in view of the severe depression that has existed in business circles for the period named. He attates that during the entire year the works have not been idle and that the demand for the company's wrought goods has been especially noticeable. New and important features will be added to the company's heaters for the coming season.

THE MONARCH STOVE COMPANY, Mansfield, Ohio, have leased from the Baxter Stove Company for a term of years theor space aggregating about 30,000 square feet, exclusive of brass

and iron foundry and plating department. The company will use this space for the production of Monarch vapor and gas stores, to which many improvements have been added for 1895.

ISAAC A. SHEPPARD & Co., Philadelphia, Pa, are about adding to their line of hot air furnaces a new furnace for brick setting which has some special features to recommend it to the trade who prefer this character of furnace. They are also bringing out a water heating device to be used in connection with the Paragon hot air furnace, so that they will have a full line of combination hot air and hot water furnaces.

The Pennsylvania Gas Furnace Company, Buffalo, N. Y., are opening a store at 615 Main street, where the Pennsylvania gas furnace of their manufacture will be shown in operation, both with illuminating and natural gas. With the increasing use of gas as a domestic heating agent particular interest attaches to the appliances for its utilization.

Announcement is made by the Superior Furnace Company of Little Falls, N. Y., that Henry A. Kelley, formerly with effice at 28 Union street, Boston, is no longer identified with the Superior line of furnaces and heaters. All communications should be addressed to the company, at Little Falls, N. Y., to which prompt attention will be given.

Fire Caused a damage of \$15,000 to the stove foundry of Oscar G. Thomas, Weir Village, Mass., on December, 4. The loss is fully covered by insurance.

Chas. E. Brackett, well known to the stove trade of the country, is now editor of the Furniture Record and Interior Decorator of Chicago. Mr. Brackett is a writer of versatility and originality, and it is to be hoped that his genius will be even more highly appreciated in his new field of labor than when he was discoursing on stoves and "men and thinga."

The Quick Meal Stove Company. St. Louis, Mo., favor us with one of their 1895 calendars, which are similar to those issued by this company in former years. The calendar is arranged with aix days to each sheet, and opposite each day is sufficient space for jotting down business engagements or other memoranda. The calendar sheets are attached to a handsomely decorated tin back which carries the company's name and address, and also a view of their factory. The calendar will be found very convenient, as it can be either used tlat on the desk, hung on the wall, or placed standing like an easel.

THE WESTERN STOVE MANUFACT-URERS met in Cincinnati on Tuesday and Wednesday of the past week and not in Chicago. Our correspondent had been misinformed, probably through inadvertence.

THE WAIS & Roos l'OWER AND SHEAR COMPANY, Cincinnati, Ohio, have been running steadily right through the depression of the past year, not shutting down at all only for a few days' repairs. In the mean time they have been enlarging their plant and getting ready for the busy season now beginning. They have added a 72 inch planer, traveling crane, &c., made necessary by the growing demand for heavy machinery.

THE PLANT of the Keystone Fiber Company, East Stroudsburg, Pa, was destroyed by fire last week, caused by an explosion.

#### FLASHINGS.

B. D. CHILDREY, 2007 East Susquehanna avenue, Philadelphia, Pa., has a contract for the rooting of an extension of Rumph's mill. The roof will contain 5000 square feet and will be covered with Taylor's Old Style IX 14 x 20 tin, which will be laid standing seam. The tin will be put together in stripa 14 inches wide.

CHARLES W. CARLL, Trenton, N. J., makes a specialty of sheet metal work in all its branches and in hts show windows and store has a handsome line of sheet metal ornaments and various styles of cornices and ceilings attractively arranged. He has the contract for the sheet metal work for the chapel of the Lawrenceville School, at Lawrenceville, N. J., and also has the contract for 30,000 feet of No. 22 corrugated iron roofing for the Electric Street Car Company of Trenton. He recently completed a fine piece of sheet metal work in the ceiling of the First Presbyterian Church at Rahway, N. J.; also in the Baptist Church at New Brunswick, N. J., where he did the roofing and cornice work.

The tin and sheet inon workers and cornice makers of Paterson, N. J., have formed an association with Walter Brooks as president and Edward Dennis as secretary, meeting every Monday evening, for sociability and for studying the scientific portion of the trade. During the winter special attention will be given to teaching advanced pattern cutting.

FRED. STOPP, Denver, Col., laid the roof on the new union depot at that city, using Merchant & Co.'s Spanish tile.

On January 2 a new course of instruction will be opened at the New York Trade School. Tinsmithing and roofing and cornice work will be taught in all their branches. The shop is fitted up with such tools as are used in this work, and the pupils will be taught the mechanical portion of the trade, and, by means of a course of lectures and drawing lessons, the pattern cutting for all the work done in the ordinary tin shop will also be taught. This is an opportunity that cannot be secured in the ordinary shop, and a scarcity of high grade sheet metal workers who have the ability to lay out their own work is felt all through the trade, the pattern cutters in some of the larger establishments receiving wages far in advance of those paid the average work-This class will be under the supervision of the Trade School Committce of the New York Association of Roofing and Manufacturers in Sheet

THE KNISELY & WELDHAM COMPANY, 68-74 West Monroe street, Chicago, have the contract for the slate roofing and copper work on the Illinois Central fluit house, South Water street.

KNORR & BLOCKS, 165 Wells street, Chicago, are to furnish the copper cornice, eight dormer windows, ridging, gutters and conductors for St. Andrew's Church, North Paulina street and Adison avenue.

THE SILICA MFG. COMPANY of New York City have been granted letters of incorporation at the office of the Secretary of State, at Albany. The directors named are Wm. Calhoun, J. Walter Straub, Emil O. Meyer and Thos. D. Prentiss of New York City. The company will carry on a roofing business and manufacture fire proof paints in New York City. Capital \$10,000.

J. C. McFarland, 2511-2519 State street, Chicago, has the contract for the galvanized iron work and slate roofing for the new school house at Galva, Ill.

James A. Miller & Bro., 129-131 South Clinton street, Chicago, are to furnish the skylight on the roof of the large new building of the Bettendorf Metal Wheel Company, Davenport, Iowa, as a sub-contract from Riter & Conley, Pittsburgh, Pa.

Hamsley Metal Roofing Company, 18 Cliff street, New York, have been appointed agents for the Wheeling Corrugating Company for New York and nearby territory. They are prepared to deliver from stock or mill direct. They will carry all stock sizes in 6, 7, 8 and 10-foot lengths V shaped Crimped Roofing, Pressed Standing Seam, Clapboards or Weather Boarding, Black or Galvanized Rock Faced and Brick Siding and Corrugated Iron. They will also handle Metal Shingles, Cornices. Skylights, &c., in conjunction with the above. The company have just completed a rock face front for a large dry goods building at Long Branch, N. J., together with a similar front for an office building at Red Bauk, N. J.

#### Trade Notes.

THE BANSFIELD WOODEN WARE COM-PANY'S office and factory in Minneapolis, Minn., were destroyed by fire on November 24. The loss is estimated at \$50,000, mostly covered by insurance.

THE ATTENTION OF OUR READERS is called to the advertusement of the Geuder & Paeschke Mfg. Company, Milwaukee, Wis., the well-known manufacturers of Tinware, relative to their celebrated Cream City Flour Bins and Sifters. The letter forming the body of their advertisement, is, as they inform us, an entirely voluntary testimonial, and as such is entitled to the careful consideration of dealers. For the convenience of the trade in the East, the Central Stamping Company, 23 and 25 Cliff street, New York City, have been appointed Eastern agents for the Cream City Bins, and will furnish them at factory prices.

THE MAYO DAMPER is referred to in an advertisement elsewhere of Mayo, Bechtel & Co., 465 North Franklin street, Pottstown, Pa. These Dampera are adapted to Stoves, Hot Air and Steam Heaters, and, it is claimed, save a large percentage of coal.

THE JOSEPH DIXON CRUCIBLE COM-PANY, Jersey City, N. J., send us their usual monthly calendar card with blotter backing, the design of which shows an extended hand with a pencil in it, suggestive of the time of Christmas giving.

AN ADVERTISING CARD distributed by the Burgess Soldering Furnace Company, Columbus, Ohio, under recent date announce that having outgrown their former manufacturing facilities for the production of the Gem soldering furnace they have leased the premises at 238 North Third street, where they have installed a complete outfit of latest improved machinery and appliances.

THE ENTIRE PLANT of the Egyptian Pottery, Trenton, N. J., was destroyed by fire on the evening of December 5. The loss is placed at about \$20,000, fully covered by insurance. The Egyptian was one of the sanitary ware potteries not owned by the pottery trust.

## TRADE REPORT.

#### The Iron Market.

Very conflicting accounts are rendered as to the condition of the Iron trade. Some manufacturers and mer-chants have drifted into a frame of mind which may be characterized as hopeless resignation. Others see daylight ahead, but frankly admit that they are thinking rather of the volume of business than of prices.

Chicago is encouraged by the appearance of some car orders, and the suggestion is thrown out that some buyers are going about their purchases in a very secretive way, in order not to raisc the market on themselves. The feeling among buyers is, however, that they have nothing to fear from any influences

Work is coming out in a spasmodic way, and that may account for the wide variations in opinion.

The attempt to revive the short lived Barb Wire pool by increasing the penalty to \$5 % ton for exceeding allotment has failed. The refusal to base the percentage claimed by a new works upon its capacity was the cause of the rupture.

In Foundry Iron the most important development is the withdrawal on the part of local makers of low quotations in the Chicago market. On the other hand, outside producers are pressing in Pittsburgh, and very low prices have been made by Virginia and Alabama furnaces in New England.

Tin has continued to decline and has

now reached 13.50¢, thus showing that the campaign of the London Tin king against the syndicate is progressing favorably. Copper and Lead are quiet, with sales of foreign Lead recorded at 3.10¢. The market for Tin Plate is without spirit and tends to favor huyers, in spite of the troubles in the American mills.

Plg Iron.-A number of round sales have been made lately in the New York market, but at very low prices. Included in them is one lot of 1200 tons to a local Architectural works and 1500 tons to a Troy stove foundry. There is a good deal of complaint of sharp cutting on the part of Virginia and Alahama furnaces in New England, and some talk of concessions on some of the Lehigh Valley brands. We quote \$12 @ \$12.50 for No. 1; \$11 @ \$12 for No. 2; and \$10.50 @ \$11 for No. 2 Plain, standard brands, tidewater deligery. z riain, standard brands, tidewater delivery. Southern Iron. same delivery, is selling at \$11.25 @ \$11.50 for No. 1; \$10.25 @ \$11.50 for No. 2; \$10 @ \$10.50 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$10.75 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.75 @ \$10.25.

Our Philadelphia advices indicate that that market is extremely dull

that that market is extremely dull, although deliveries are still called for with considerable urgency, indicating that consumption is well maintained, and that yards are somewhat bare of atock. New business is not large, however, there being a general disposition to await developments before entering 

than there was some time ago, and while prices are not lower the feeling is heavy, and it is just possible that somewhat lower figures may be made before there is anything like general activity. Business is mostly of a hand-to-mouth character, although in some cases sales have been made for deliveries covering the first three months of '95, and at about the same quotations as for spot lots. General quotations for Philadelphia and nearby points are about as fol-lows, and for deliveries within a radius of 100 miles south or west 20¢ @ 30¢

 Standard No. 1 Foundry X
 \$12.50
 \$13.00

 standard No. 2 Foundry X
 11.50
 65
 11.75

 No. 2 Plain
 10.75
 62
 11.60

 No. 1 Soft
 11.50
 66
 11.75

 No. 2 Soft
 10.75
 62
 11.00

In Chicago the local Coke Iron makers have withdrawn their lowest quotations and the market is now much firmer. Transactions of the past week were unexpectedly good, embracing several lots of 1000 to 2000 tons. The demand grows out of the improvement in general business, consumers finding their requirements running beyond anticipations and they are ordering larger monthly deliveries. The market for local Iron has also been considerably widened and shipments are now being regularly made to the territory bordering on the Ohio River. Southern Iron is in no better demand than before and prices are in the same condition of irregularity, the smaller companies making lower figures than the leading concerns. Lake Superior Charcoal is in moderate demand, but the quantity moving appears to he gradually increasing. Quotations are given as follows for cash:

Lake Superior Charcoai	\$13.00	0	\$14,00
Local Coke Foundry, No. 1.	10.25	0	10.50
Local Coke Foundry, No. 2	9.75	0	10 00
Local Coke Foundry No. 8.	9.50	0	9.75
Local Scotch	10.50	a	11.60
Ohio Strong Softeners No. 1	12.50	0	13,00
Southern Silvery, No. 1	11.50	0	11.75
Southern Silvery, No. 2	11.25	0	-11.50
Southern Coke, No. 2	10.25	60	10.50
Southern Coke, No. 3	9.75	0	10.25
Southern, No. 1, Soft	10.25	0	10.50
Southern, No. 2, Soft	10.00	0	10.25
Alabama Car Wheel	17.50	0	18,00
Jackson County Silvery	15.50	0	16.00
Other Ohio Silvery	14.25	a	14.50
Ourer oursers		-	_,,,,,

The condition of the Pig Iron trade in the Pittsburgh district, both as regards demand and prices, is unsatisfactory and at the same time is puzzling. It is admitted on all sides that stocks of Iron are light, and while the demand is not heavy, prices are weak and are probably as low as ever before in the history of the trade. Both buyers and sellers of Pig Iron ad mit that there is no warrant for the present low prices, and it is the general opinion that a few purchases of round lots would soon bring about better prices. Indications point to a heavy consumption of Pig Iron next year, and it seems certain that prices cannot well go much lower, but should improve with a better demand. Reports are going of some very low prices being made on Foundry Iron by furnaces in outside districts, and it is probable our quotations on both Nos. 1 and 2 could be shaded. We quote as follows:

As regards the St. Louis Pig Iron market there is practically no de-mand. Sales during the last week were probably lighter than they have been at any period during the entire year. A few orders have been booked for delivery during 1895, and the readiness with which furnaces accept these orders would seem to indicate that they place little faith in any improvement in prices after the turn of the year. We quote as follows for eash, f.o.b. cars St. Louis:

dry 9.50 & 9.75 Southern Car Wheel 16.50 & 17.00

Sales are reported as numerous in the Birmingham, Ala., market, in fact some fair sized orders have been turned down, owing to demand to shade prices, while outputs were covered by sales already made. There has been an encouraging incresse in this respect. Prices are firm, and little shading is reported. Some good cired and respect 1000 to the respect to the shading is reported. sized orders of 1000 tons each are reported at firm prices; those were for Nos. 1 and 2 Foundry and Gray Forge. The demand is very general in all grades, the higher grades, in fact, showing a gratifying demand. Quick de-livery is demanded in many cases, even in 1000 ton lots, showing a lack of supplies in hands of consumers. Collections are reported as very good, with little demand for time. Inquiry with little demand for time. Inquiry is decidedly stringent for delivery to cover 1895, but is meeting with no encouragement, few sales being reported beyond April. A sale of 1000 tons of No. 2 Foundry is reported to a local pipe works at ruling prices.

#### Metal Market.

Pig Tin .- The upward reaction in prices mentioned in our last report has given place to an almost uninterrupted downward movement. Prices in this market have been carried down to the lowest figures yet reached, and it is freely predicted that "8 lb of tin will be bought here for a dollar" before long. Whether this will be so or not, the market presents a weakish appearance between the pressure of promment operators and the weight of heavy supplies. Ordinary trade buying has been very moderate, notwithstanding the current low prices. For small lots from store, jobbers' prices are 151¢ @ 16¢ for Straits Pig, with an advance of 1¢ to lle on Straits Bars. Banca Pig is quoted at 161¢ @ 17¢.

Copper.-Judging from the meager information imparted by producers' agents, business has been moderate during the past week. The general statement was that no purchases have been made except of moderate sized lots needed to tide over immediate wants. The usual rumors are about to the effect that contracts have been made for stock for delivery early next year, but the rumors go into no details as to amount of business or prices. Whether large

contracts have been made or not it is clear that almost any variety of Copper may be purchased at the prices that ruled a week ago. Inquiries from consumers are limited, and buying is of a very tame character. Prices for small lots are unchanged from those given in last week's report.

Sheet Copper.—Inquiry is slow, and orders limited to comparatively small quantities for direct consumption. The basis of prices for small lots of Sheet Copper from store is 15¢ ‡ lb, net.

Pig Lead.—Spot supplies have been light, and offerings for shipment this month have averaged rather small also. Purchases were not at all heavy, nor were the inquiries anything more than fair, and the indications are that there is no great confidence in the future of the market, whatever present conditions may be, since foreign Lead is quietly offered to consumers at comparatively low prices for future delivery. Sales of foreign have been made this week at about 0.05 % less than domestic Lead is selling at. The jobbing demand has been exceedingly flat and prices somewhat weaker. Small parcels fetch  $3\frac{5}{8}\%$ 

Lead Sheet and Pipe.—The consumptive demand for Manufactured Lead in this section is referred to as being of very moderate proportions; and no improvement is looked for this side of the holidaya. Prices are satisfactorily maintained, however, on the list basis of 51¢ for Pipe and 61¢ for Sheet, with 20 % discount.

Spelter.—The demand shows no improvement. Orders are, as a rule, confined to moderate quantities; and offerings have increased, giving the market a rather soft tone. Western in small parcels fetches about  $4\phi \approx 10$ .

Sheet Zinc —There is only a tame movement in this material, and prices are rather easier, 600-lb casks being quoted by dealers at  $4\frac{1}{2}\phi$ , with smaller quantities at  $5\phi \gtrsim 10$ .

Anthuony.—A fair jobbing business has been done, which serves to keep prices at about their former level. Small lots of Cookson's are quoted at  $9\frac{1}{2}\phi$ , and Hallett's at  $8\psi \approx 1b$ .

Tin Plates.—The falling off in demand, which usually marks the approach of the holiday and stock taking season, appears to have developed during the week to the further detriment of business in this market. Nothing beyond buying in a small way for current needs is noted. Inquiry has been slack, and consumers generally take hold in a very indifferent manner. Little or no interest is taken in future shipments, and spot business is of a purely routine nature. Advices from either the home or the foreign producing centers are not encouraging, and the market has shown a softer tone, as stocks have increased and sellers are more anxious than buyers. The assortment of foreign Plates is more ample, some heavy shipments having arrived during the past week. Pricea, while showing little radical change, are weaker, and shading of quotations on desirable orders is more common. Collections are referred to as satisfactory.

The condition of the British Tin Plate market is thus described in a special London cable dispatch of December 5 to The Iron Age: Tin Plate market has been weaker. Makers are eager sellers at late rates, but orders are scarce and buyers' views about 2d. per box lower. Orders are scarce. Terms went at 18/6 for double box, ordinary Cokes at 9/6

and ordinary Charcoala at as low as 10/6. Stocks at shipping points show a further alight increase. Sellers' quotations at Swansea are as follows:

Bessemer Cokes, IC 14 x 20 Siemens Cokes, IC 14 x 20	9/6 @ 9 '9 9/9 @ 10/
I. B. Steel Cokes, IC 14 x 20 I	8,6 @ 21/
Ternes, 20 x 28 I	10/6 @ 12/6

Sheet Iron.—Trade is quieter in both Black and Galvanized Sheets. Although mills are said to be well furnished with orders, manufacturers' agents are pushing more urgently for business, and prices are in some cases quoted a shade lower. No. 27 Common Iron, in small quantities from atore, is quoted by jobbers in this city at 2.60¢ @ 2.65¢, while Galvanized Sheets in small lots rule at 75 and 7½ % @ 75 and 10 and 2½ % off.

### Chicago Report.

Scrap.—The market for Old Material is stronger, notwithstanding the large offerings by railroads. Old Rubber, particularly, is in heavy demand. Dealers quote their buying prices as follows, Chicago delivery:

Per	net ton.	Per th
No. 1 Wrought Scrap	. \$7.00	
Machinery Cast		
Malleable Cast	. 5.50	
Stove Plate (free of burnt)	4.25	
Burnt Iron and Grate Bars.		
Sheet Iron and Hoops		
Plow Steel and Breaking	g	
Stock	. 4.00	
No. 2, such as Shovels, Hoes	5,	
&c	. 3.00	
Old Boilers—whole (Iron)		
" (Iron)—cut in singl		
Sheets and Rings.	. 6.00	• • • •
Old Gas-Pipe and Boile		
Tubes	. 5.00	
Cast Borings		
Turnings	. 4.00	• • • •
Horseshoes		
Copper Bottoms		6 ¢
Copper Clips and Heavy		7 0
Heavy Brass		6 ¢
Light Brass		3 ¢
Pipe Lead		21/24
Tea Lead		2 ¢
Zinc		$21/\epsilon$
Rubber	• • • • • •	<b>4</b> ½¢

Anthracite. — Prices have been reduced and dealers hope that the new rates will be held firmly. Carload lots of 12 net tons, or over, are quoted as follows:

	F	Egg, Sto.
	Grate.	and Ch
Chicago, Ill	\$4.75	\$5 O
Milwaukee, Wis	4.75	5.00
Kansas City, Mo	7.95	8.20
Council Bluffs, Iowa	7.95	8,20
Lincoln, Neb	8.10	8.33
Sioux City, Iowa	7.95	8,20
Aberdeen, S. Dak	8.00	8.2
Dubuque, Iowa	6.05	6,30
Madison, Wis	6.25	6.50
St. Paul, Minn	7.25	7.50
Burlington, lowa	6,25	6.50
Des Moines, Iowa	7.75	7.93
Davenport, Iowa	6.05	6.30
St. Joseph, Mo	7.95	8,20
Leavenworth, Kan	7.95	8.20
Omaha, Neb	7.95	8.20

#### Colorado Anthracite.

COLORADO FUEL & 1RON COMPANY.

COLORADO FURL & INON COMPANI	
Denver	\$8.00
Pueblo	8.00
Colorado Springs	8,00
Leadville	8.00
Chevenne, Wyo	10,00
All points between Deuver and	
Missouri River	8.85

THE COLUMBUS WROUGHT STEEL SINK is the subject of an advertisement presented elsewhere in this issue by the Kilbourne & Jacobs Mfg. Company, Columbus, Ohio. These Sinks are drawn from single sheets of steel without seam. An illustration shows the general apearance of the Sink.

#### CONDITION OF THE

### Hardware Trade.

USINESS is showing the falling off which usually comes with the com-mencement of the last month of the year, when both wholesale and retail merchants are giving their atten-tion to closing up the year's business, getting stocks in order for inventory, and endeavoring to keep them down as low as possible. Purchases are therefore limited to urgent and immediate requirements and special holiday and winter goods, which are heing ordered more freely. There is also a good deal more freely. There is also a good deal of negotiation going on between large houses and the manufacturers in regard to the terms on which stock orders for next season may be placed, and some of the manufacturers report gratifying results as to the extent of orders already booked. Buyers, both large and small, however, realize that the market is weak as well as low, and it is a difficult question which they are called upon to decide as to the extent to which orders should as to the extent to which orders should be placed at this time. It is evident that a policy of delay carries with it not only the chance of a further decline, but also of a stiffening in the market and advanced prices. In some staple lines advanced prices. In some staple lines manufacturers, who are anxious to have orders to keep their plants in operation during the year, are refusoperation during the year, are refus-ing to quote prices at present current for deliveries later than March or April, the opinion being entertained by many that a recovery from the present low prices is likely to come with the increased demand. It is, how-ever, a fact that at this time there is a good deal of weakness in many lines, and the tendency in both heavy and a good deal of weakness in many lines, and the tendency in both heavy and shelf goods is toward lower prices. It is plainly the part of wisdom for the trade to watch the market closely. There is some complaint in regard to collections, but financial conditions, on the whole, appear to be fairly satisfactory.

Advices from Chicago.—Shelf Hardware keeps up remarkably well for December. The mails of the past few days have been almost as heavy as at any time in the year. This is doubtless due, as previously explained, to the careful manner in which country merchants have long been buying, so that they are compelled to continually replenish their stocks; nevertheless jobbers are expecting their trade to show a gradual decline for the remainder of the month, and will not be disappointed if the next two or three weeks prove to be dull. The Tinware and House Furnishing jobbers report a better demand. Small goods in this line show special improvement. Salesmen are sending in very favorable letters regarding the outlook for the future; factories are catching up on orders and are now able to make more prompt deliveries. Heavy Hardware is inclined to quietness, as usual this month. The jobbers themselves are buying sparingly with the close of the year approaching, and their customers follow the same practice. A very much larger business is looked for after the turn of the year.

#### Notes on Prices.

Wire Nalls.—There is an excellent demand for this season of the year, but it begins to show signs of falling off. Some large orders have been placed for next season, but some of the principal buyers are delaying their purchases thinking that possibly prices may go lower. The desire of the manufacturers to keep their mills in operation during the next few months makes competition very active, and nearly all of them ar

evidently anxious to secure such business as they can. Small lots from store are held at \$1.20 to \$1.25.

Advices from Chicago.—Plenty of inquiry is reported for January, February and March, but the demand for early delivery is light. Some of the manufacturers have taken large orders for delivery during the first quarter, but others are not disposed to meet present prices so far along luto the future, and are discouraging this class of orders. Johbers are endeavoring to maintain \$1.10 for small lots from stock, but this is shaded to best buyers by some houses.

Cut Nails.—The demand for Cut Nails is moderate, and with the approach of the close of the year is lighter than it has been during the past month or two. Small lots from store are held at 95¢ to \$1.

Advices from Chicago.— The Cut Nail trade appears to go on in a very even way. Orders continue to come in in single carload lots, but they are be ing received steadily. Prices are unchanged. Small lots are quoted at \$1 from stock.

Barb Wire.—The Barb Wire market continues in the same state as at our last report. Some large orders have been placed, so that with the business previously secured the mills have a considerable portion of their output covered. There is still a good deal of inquiry, and the indications point to an exceptionally large business being done during the coming year. In the matter of price the market shows little change. It is represented by the quotation of \$1.85 to \$1.90 for Four-Point Galvanized in carload lots at mill.

Advices from Chicago.—Barb Wire manufacturers have recently been resching out for business very actively. The season was rapidly passing for making contracts for spring delivery, and the breaking up of the pool enabled each manufacturer to go on his own account and sell without restraint. The consequence is that mills in this vicinity have their order books well filled now for at least the first three months of the year and possibly beyond that. The demand for other classes of Wire products continues very good, and the outlook for the future is as bright as before. Jobbers are quoting small lots of Painted Wire from stock at \$1.75, and Galvanized at \$2.10.

at \$1.75, and Galvanized at \$2.10.

Cordage. — The market on Cordage has not improved during the past week or two, and the low prices to which we recently referred have become more general. The competition between the manufacturers is active and the demand moderate. The market is represented by the following quotations for large lots, f.o.b. factory or New York, prices given being subject to 1½ per cent, discount for cash:

 $\begin{array}{c} \text{Base.} \\ \text{Cents.} \\ \text{Manila.} & \begin{array}{c} -7 \frac{1}{2} \sqrt{3} \\ \text{Sisal.} & \begin{array}{c} 4 \frac{1}{2} \\ \text{New Zenland.} & \begin{array}{c} 4 \frac{1}{2} \end{array} \end{array}$ 

Family Grindstones.—We are advised by the Grafton Stone Company, Grafton, Ohio, that they are furnishing their goods, f.o.b. quarry, at the following prices:

Family Grindstones.

		ozen.
6 and 7 inch	 	\$4,00
6 and cineu	 	4 60
Sand 9	 	0.5
10, 11 and 12 inch	 • • • •	, 0,00

These are referred to as having their special enameled base boards and screw clamp, the stone being polished and the goods packed half dozen in a

box. Loose Grindstones, 30 to 200 pounds, are quoted at \$6 to \$3 per ton. The following prices are also announced:

No. 1 Grafton Mounted Grindstone...\$1 50 No. 2 " " ... 1.30 No. 3 " " ... 1.15

Glass.-Reports regarding the condition of the American Window Glass trade indicate that a steady demand has taken the place of the spasmodic handto mouth orders, and that in some in stances manufacturers have booked orders equal to the capacity of their factories for some time to come. It is actories for some time to come. It is understood that some orders are of a speculative nature, those placing such orders being confident enough of the future to anticipate an advance in prices. More conservative dealers, however, do not look for higher, prices before conservative and the conservative dealers. higher prices before spring and are not making purchases much beyond their probable requirements. Business among jobbers is reported as fair and as showing an improvement over that of the early fall. Building prospects are considered good, and a large amount of work in this direction is being contemplated throughout the coun-Factory quotations at Pittsburgh for Glass in car lots are given as 90 per cent. discount for single and 90 and 5 per cent. discount for double strength Glass. Cleveland, Ohio, jobbers quote Glass from store in full boxes at 85 and 20 per cent. discount for single and 85 and 20 and 5 per cent. discount for double strength Glass.

Old Rags, Paper, &c. — Demand shows a slight improvement and prices are better for some qualities of Paper Stock. The following quotations represent the current rates paid by dealers in the city:

in the city.				
No. 1 White Rags	Ъ	3	Ø	340
No. 2 White Rags	D	24	(Œ	2560
Mixed Rags	Ъ	5/4	(t)	1 0
Blues and 3ds	В	$1 \frac{1}{8}$	(4)	1840
Hard Sized White Shavings	D	21,	0	21/0
No.1 White Book Snavings	D	184	@	21/84
No.2 White Book Shavings		1		
Light Book Shavings	D		-	660
No. 1 Mixed Shavings *	R	- 34	0	1 4
No. 2 Mixed Shavings ?	Ъ	6/	0	8/19
No. 1 Printed Books ?	Ъ	1	@	11/4
Ordinary Mixed Books ?	D	Ж	0	
Newspapers	Ib	_		2-54
No. 1 Manila Paper	$\mathbf{p}$	%	a	1 4
No. 2 Manila Paper	В	36	0	%1
Bogus Paper	D			361
Common Paper	Ъ	- 14	(d)	3.5
Straw Chips	D			369
Binders' Clippings	D			361
Jute Butts	Ъ	11/4	0	13/4
No. 1 Jute Bagging		1		
Mixed Bagging₩	ь	%		
No. 2 Bagging	ъ	- 1/4	@	1969
Hemn Twine	ъ	- 2	(4)	2 1/4 1
Manila Rope	n	2	@	21/81
Jute Rope	ID	176	(a)	194
Mixed Rope	D	%	4	369

Old Metals —Business moderate and rates substantially unchanged. New York dealers' purchasing prices are about as follows:

Heavy Copper	. ¥ D	7 #
Light and Tinned Copper	. W LC	D 16 € €
Heavy Brass	, W 10	4016
Light Brass	. 20 D	38/4
Lead	10 D	28/
Tee Teed	39 17	21/4
Fea Lead	W D	91
Zinc	2 2	1114
No.1 Pewter	# TC	111 6
No. 2 Pewter	. 🍟 D	) D 6
Wronght Scran Iron. 29 gross		
ton \$7.	10 C	\$5.00
Heavy Cast Scrap # gross	-	
ton	60 ത	9.50
Diese Diese Joseph 20 orross	ton	5.00
Stove Plate Scrap # gross	100	3.00
Burnt Iron 😭 gross	LOH	0.00
Old Publice Dealers' ni	rch	asino

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Rub	her she	ies, les	s that	CAT-		
100	fulls bi	Th			 0	.04
Lan	ge Hos	e. 10 to	n		 43	15,00
Wh	te Wr	inger I	Rolls.	39 D.	 41	.00%
	ite Byı					.03

Willia Syringes, with	_			
CONTENTS.				
Editoriais: PAG	Е.			
A Preparatory Trade School	31			
Fuel and Solar Heat	31			
Making Pictures	31			
The Letter Box—				
Hot Water from Cold Faucet	32			
Tools for Clearing Chimney Flues, Ill	32			
Incasing Indirect Radiators	32			
What Is a Pedestal Closet?.	33			
Water in Heating Boller	121			
Frosty Show Windows	33			
Cleaning Solder	33			
Sheet Metal Boat	33			
Steam in Boller	33			
Address Wanted	1,512			
Steam and Hot Water-	31			
A Heating Claim to a Camp	34			
Heating Notes	-			
Calculating Chart for Areas and Contents. Illustrated	34			
Heating and Plumbing-New Work and				
Contracts	36			
Galvanizing	37			
Power Squeezers. Plustrated	38			
The Retail Store—				
An Elaborate Kuife. Illustrated	29			
The Safety Grip Lifter. Hiustrated	39			
The Iceland Freezer. Illustrated	39			
Corrugated Ash Can. Illustrated	39			
	-			
The New Rochester Lamp. Illustrated.	40			
The New Rochester Lamp. Illustrated. Parker's Victor 1-Pound Mill. Illus	41			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Tea and Coffee Pots. Hus				
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus Decorated Tea and Coffee Pots. Hlus Memoranda	41 41 41			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus Decorated Ten and Coffee Pots. Hlus Memoranda Tin Plates— The Morton Tin Plate Company	41 41 41 42			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus. Decorated Tea and Coffee Pots. Hlus. Memoranda Tin Plates— The Morton Tin Plate Company The Mines of Australasia	41 41 41 42 42			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus Decorated Ten and Coffeo Pots. Hlus Memoranda Tin Plates— The Morton Tin Plate Company The Mines of Australasia	41 41 41 42			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus. Decorated Tea and Coffeo Pots. Hlus. Memoranda	41 41 41 42 42 42			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus Decorated Tea and Coffeo Pots. Hlus Memoranda	41 41 41 42 42 42 43			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus Decorated Tea and Coffeo Pots. Hlus Memoranda	41 41 42 42 42 43 44			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hlus Decorated Tea and Coffeo Pots. Hlus Memoranda	41 41 41 42 42 42 43			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Illus. Decorated Tea and Coffeo Pots. Illus. Memoranda.  Tin Plates— The Morton Tin Plate Company. The Mines of Australasia Scrap  Drawback Rates Tho New Norton Can Factory. Illus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business  Combination Sink and Trap. Illus A Plumbers' Smoke	41 41 42 42 42 43 44			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Illus. Decorated Tea and Coffee Pots. Illus. Memoranda.  Tin Plates— The Morton Tin Plate Company. The Mines of Australasia Scrap  Drawback Rates Tho New Norton Can Factory. Illus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business Combination Sink and Trap. Illus A Plumbers' Smoke New York Trade School.	41 41 42 42 43 44 46 46 46 46 47			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Ten and Coffee Pots. Hlus Memoranda	41 41 42 42 43 44 46 46 46			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Tea and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap Drawback Rates The New Norton Can Factory. Hus Piumbing and Gas Fitting— The National Couventions of Piumbers for Business Combination Sink and Trap. Hius A Piumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes—	41 41 41 42 42 43 44 46 46 46 47 48			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Tea and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap  Drawback Rates The New Norton Can Factory. Hus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business Combination Sink and Trap. Hius A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers	41 41 42 42 43 44 46 46 46 46 47			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Tea and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap Drawback Rates Tho New Norton Can Factory. Hus Plumbing and Gas Fitting— The National Conventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers The Stove Trade of the West The Ohio Stove Trade	41 41 42 42 43 44 46 46 47 48 49 49			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Tea and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap Drawback Rates Tho New Norton Can Factory. Hus Plumbing and Gas Fitting— The National Conventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers The Stove Trade of the West Cupola Tuyeres.—I. Hinstrated	41 41 42 42 43 44 46 46 47 48 49 49			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Tea and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap Drawback Rates The New Norton Can Factory. Hus Plumbing and Gas Fittink— The National Conventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers The Stove Trade of the West The Ohio Stove Trade Cupola Tuyeres.—I. Hinstrated "Home Comfort and Steel Ranges"	41 41 42 42 43 44 46 46 47 48 49 49			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Ten and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap Drawback Rates The New Norton Can Factory. Hus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers The Stove Trade of the West The Ohlo Stove Trade Cupola Tuyeres.—I. Hiustrated "Home Comfort and Steel Ranges" New Tropic Vapor Stoves.	41 41 42 42 43 44 46 46 47 48 49 49 50 51			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Ten and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap Drawback Rates The New Norton Can Factory. Hus Plumbing and Gas Fittink— The National Couventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers The Stove Trade of the West The Ohio Stove Trade Cupola Tuyeres.—I. Hiustrated "Home Comfort and Steel Ranges" New Tropic Vapor Stoves. Odd Plates Flasblings	41 41 42 42 43 44 46 46 47 48 49 49 50 51 51 51 52			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Illus. Decorated Tea and Coffee Pots. Illus. Memoranda.  Tin Plates— The Morton Tin Plate Company. The Mines of Australasia Scrap.  Drawback Rates Tho New Norton Can Factory. Illus. Piumbing and Gas Fitting— The National Couventions of Plumbers for Business. Combination Sink and Trap. Illus. A Plumbers' Smoke New York Trade School. Traps and Vents. Stove Trade Notes— Meeting of Western Stove Makers. The Stove Trade of the West. The Ohio Stove Trade. Cupola Tuyeres.—I. Illustrated. "Home Comfort and Steel Ranges". New Tropic Vapor Stoves. Odd Plates. Flashings. Trade Notes.	41 41 42 42 43 44 46 46 47 48 49 50 51 51			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Ten and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap  Drawback Rates Tho New Norton Can Factory. Hus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers The Ohio Stove Trade. Cupola Tuyeres.—I. Hinstrated "Home Comfort and Steel Ranges" New Tropic Vapor Stoves Odd Plates Flashings Trade Notes Trade Report—	41 41 42 42 43 44 46 46 47 48 49 49 50 51 51 51 52			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Ten and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap  Drawback Rates Tho New Norton Can Factory. Hus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade of the West The Stove Trade of the West The Ohio Stove Trade. Cupola Tuyeres.—I. Hinstrated "Home Comfort and Steel Ranges" New Tropic Vapor Stoves Odd Plates Flashings Trade Notes Trade Report— The Iron Market	41 41 42 42 43 44 46 46 47 48 49 49 50 51 51 51 52			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Hus Decorated Ten and Coffee Pots. Hus Memoranda  Tin Plates— The Morton Tin Plate Company The Mines of Australasia Scrap Drawback Rates Tho New Norton Can Factory. Hus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business Combination Sink and Trap. Hus A Plumbers' Smoke New York Trade School Traps and Vents Stove Trade Notes— Meeting of Western Stove Makers The Ohio Stove Trade. Cupola Tuyeres.—I. Hjustrated "Home Comfort and Steel Ranges". New Tropic Vapor Stoves Odd Plates Flashings Trade Notes Trade Notes Trade Report— The Iron Market Metal Market Chicago Report	41 41 42 42 43 44 46 46 47 48 49 49 50 51 51 52 52			
The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Illus. Decorated Tea and Coffeo Pots. Illus. Memoranda.  Tin Plates— The Morton Tin Plate Company. The Mines of Australasia Scrap  Drawback Rates Tho New Norton Can Factory. Illus Plumbing and Gas Fitting— The National Couventions of Plumbers for Business Combination Sink and Trap. Illus. A Plumbers' Smoke New York Trade School. Traps and Vents. Stove Trade Notes— Meeting of Western Stove Makers. The Ohio Stove Trade. Cupola Tuyeres.—I. Illustrated. "Home Comfort and Steel Ranges". New Tropic Vapor Stoves. Odd Plates. Flashings. Trade Report— The Iron Market Metal Market. Chicago Report Condition of the Hardware Trade	411 412 422 423 434 444 466 477 488 499 499 501 511 522 522 533 544 545			
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The New Rochester Lamp. Hustrated. Parker's Victor 1-Pound Mill. Illus. Decorated Tea and Coffee Pots. Illus. Memoranda.  Tin Plates— The Morton Tin Plate Company. The Mines of Australasia Scrap  Drawback Rates The New Norton Can Factory. Illus Plumbing and Gas Fitting— The National Conventions of Plumbers for Business Combination Sink and Trap. Illus. A Plumbers' Smoke New York Trade School Traps and Vents. Stove Trade Notes— Meeting of Western Stove Makers The Ohio Stove Trade. Cupola Tuyeres.—I. Illustrated. "Home Comfort and Steel Ranges". New Tropic Vapor Stoves Odd Plates Flashings Trade Report— The Iron Market Metal Market Metal Market Chicago Report Condition of the Hardware Trade Notes on Prices Metal and Miscellaneous Prices. Labor Ezchango— Help Wanted.	411 412 422 423 434 444 466 477 488 499 499 501 511 512 522 533 544 544 545 545 556			

### Metal and Miscellaneous Prices.

#### CHICAGO, DECEMBER 6, 1894.

Tin-	110
Straits pigs18¢	10
Imported Tin Plates-	Iro
Charcoal Plates.—Bright.	10
Snaranteed Plates command special	l Ire
(IC 10 x 14 @ \$5.75	110
1C, 10 x 14	Iro
	10
Calland and IX, 10 x 14 6 7.50 EslynGrade IX, 12 x 12 6 7.50	Iro
EstynGrade   1X, 12 x 12,	F
DC, 12% x 17 6 5 50 DX, 12% x 17 6 7.25	•
IC 19 x 12 @ 5 50	R.
IC. 20 x 28@ 11.(1)	R.
IX, 14 x 20	oi
Cobe Plates-Bright.	_
Per hox.	Pa Pa
#### Coke—IO. 10x14.14x20.\$4.75 @ 5.00 IC. 14x20.90 B4.25 @ 4.50	En En
10, 14x20, 100 b., 4,50 @ 4,75 10 x 20 @ 7.95 20 x 28 @ 10,00 (X 10x 10x 10x 20 @ 6,235 (X 10x	Hi
A, 104 11, 11 2 20	Al.
■.▼. Grade. IC,10x14,14x20	8p
Charcoal Plates.—Terne.	Ni:
guaranteed Plates command specia prices, according to quality. Lansel and Dean Grades.—	W
IC. 14 x 20@ \$5.00	l I
IC. 14 x 20	Κe
Worcester Brand and equal.—	Fu
IC, 20 x 28., 10.00 @10,50 IX. 14 x 20., 6.25 @ 6.50	1
	Ire
In Boiler Plates.	lre F
Per box of Per box of 100 sheets. 112 sheets.	Ch
100 sheets. 112 sheets. X 14 x 28. \$11.75 XX 14 x 28. 13.00 13.75 X 14 x 31. 13.00 12.50	Ja 1
X 14 x 31 13,00 12,50 XX 14 x 31 15,00 15,00 Per hox of	i
56 sheets.	m
X, 14 x 56 \$20.50 XX, 14 x 56 \$20.50	1 E.
X 14 x 60 32.25	Į į
	Jе
American Tin Plates.  Charcoal Plates.—Bright.	Ol
Minerys:	1
IC, 10 x 14, 12 x 12, 14 x 2085,8716 IX, 10 x 14, 12 x 12, 14 x 20.6,6236	
Florence.—	H
IO, $10 \times 14$ , $12 \times 12$ , $14 \times 20$ , $$5.75$ IX, $10 \times 14$ , $12 \times 12$ , $14 \times 20$ . $7.50$	"
Palma	
IC, 10 x 14, 12 x 12, 14 x 20 6,25 IX, 10 x 14, 12 x 12, 14 x 20 8,00 Usual extrat or other crosses and 20 x 28	3
Usual extra or other crosses and 20 x 28	M
double these prices.	1

frondale, AAA, tissue paper packed:
Irondale, AAA, tissue paper packed :   IC, full weight, 14 x 20
Irondale A A :
10, full weight, 11 x 20
Irondale A:
IC, full weight, 11 x 20 5.00
Irondale B:
1C, 100 lbs , 11 x 20 4.75 1C, full weight, 11 x 20 1.85
Irondale C. IC. 14 x 20, 100 lbs
Cone Plates.—Bright.
R W & B 1C 14 x 20 108 Hbg \$5.00
R. W. & B., 1C, 14 x 20, 108 lbq\$5.00 old Hundred, IC, 14 x 20, 100 lbs 4.75 R. W. & B., IC, 20 x 28, 216 lbs 10 00 old Hundred, IC, 20 x 28, 200 lbs 9.50
Dander Dinker
Palm, 1C, 20 x 28
Palm, IX, 20 x 28 @ 12.25
Empire, IC, 20 x 28
Hickory. 1C. 20 x 28
" 1X, 20 x 28 @ 14.10
Alaska (heavily coated), IC, 20x28@ 13.50
Special IC, 20 x 28
" IX, 20 x 28@ 16.50
Palm, IC, 20 x 28,
Westmoresand.
IC, 14 x 20 5.124/ IC, 20 x 28 10.25
Kenwood:
IC, 20 x 28, 10.00
Furmston :
1C, 20 x 28 9.75
Irondale A. IC, 20 x 28 10.50
Frondate B. IC. 20 x 28 10.10 f
The first cross value
Challenge, IC, 20 x 2810.50
Jano:
1C, 14 x 20
1C, 20 x 28
Illinois, Old Method :
1C, 20 x 28 13.50
E. L.:
1C, 20 x 28 11.00
Jessie:
IC, 20 x 28 10.50
Old Process:
IC, 14 x 20. 8,50 IX, 14 x 20. 10,40
1C, 20 x 28\$17.00
IX, 14 x 20.
I fa, h, h, old style;
1C, 14 x 20 7.00
1C, 20 x 28
IX, 20 x 28
1C, 14 x 20
Merchant's Tandemper roll, 2.75

	•	
	Sheet Iron-	8
	Black. Common	ŀ
,	American Refined	İ
•	Nos. 10 to 16.	1
	25 and 26 * D 2 4-10# 8 1-10# 27 * D 2 5-10# 8 2-10#	1
	Russia, Planished, &c.	1
	Gennine Russia, all numbers18¢ net. Patent Planished平 あ A, 10%¢; B, 9%¢ dis. 5% Craig's Pelished Shoot Steel	1
ŀ	Craig's Pelished Shoot Steel814#	1
	Galvanized.	ľ
ľ	Juniata or first qualitydie.75%10%	٩
ĺ	Copper— Ingot.	١
	Lake	1
ı	Sheet and Bolt.	í
	Discount on old list (except advance on cold rolled polished boiler sizes to	li
l	25¢), 25%.	1
ļ	Copper Bottoms.  Discount on old list, 25%.  Seamless Brass and Copper Tubes.	
l	Seamless Brass and Copper Tubes. Base price, 1716s, Chicago, with extras	3
	Discount on old list, 25%. Scamless Brass and Copper Tubes. Base price, 17%, Chicago, with extras according to atze. Copper, Bronze and Gilding Tubo, 34 % additional.	,
ĺ	Brazed Brass Tubing. (100 m lots.)	١,
ļ	(To No. 19 inclusive.) Discount, 40%.	1
l	Plain, % Inch up to 2 Inch\$0.35	ľ
l	Plain, % inch up to % inch	1
l	Plain, 5-16 inch up to 34 inch	ļ
1	Plain, 3-16 inch up to 4 inch 1.00 Plain, 16 inch up to 3-16 inch 1.50	١
١	Plain, 2 inch up to 3 inch	1
l	Discount, 40%.  Plain, 34 inch up to 2 inch	ŀ
	Roll and Sheet Brass. (100 D lots.) Discount, 40%.	١
ļ	Slab Speiter-	l
١	Western Speiter4¢	l
١	Sheet Zinc-	۱
İ	600 b casks\$1,75 300 b casks4.95 Loose sheets5.05	
1	Solder-	
1	¼&¼10½@11½¢ Extra Wiping9¼@10½¢	l
	The prices of the many other qualities of Solder in the market indicated by pri- vate brands vary according to composi- tion.	
	Antimony—	1
Ц	Antimony	п

Lead-	
Soft Pla Tood	
Har	
Soft Pig Lead	
Block Tip Pipe	
Sheet	
Wrought-Iron Pipe	
Wiought Hon Pipe	
114 and under, Plain 574&10&10%	
14 and under, Pisin	
11/2 and over, right 0/26/210/210/2	
Boller Tubes list Oct 94 1809 70-104	
Casing, list Nov. 16, 1892. 5214	
Inserted Joints Casing, list Nov. 16.	
1892	
1892. 4776 Steel Beiler Tubes. 2775 Cold Drawn Seamless Steel Tubing. 608	
Cold Drawn Scamless Steel Tubing	
Cast-Iron Soil Pipe— Cast-Iron Soil-Pipe, Tarred; sises 2 to 8 Inchea, inclusive	
Cast-Iron Soll-Pipe, Tarred : sises 2 to 5	
Other sizesdis 60%	
Gther sizes	
Leader Pipes	
Anatin's Corrupted Riveted 60%	
Gorden & Gilbert's Cormented 850	
Ritchie's (Galv. Iron only) Cord	
Ritchie's Spirai Lock Seam, Galv'd 00%	
Austin's Spiral Ribbed Plps 65%	
James A. Miller Bros. (Galv'd Iron	
only) Corrugated 65%	
Adjustable 50&10@80% Spiral 60%	
Spiral60%	
Furnace Fittings— Discount from Excelsion Steel Furnace Co.'s list	
Discount from Excelsion Steel Fur-	
naca Co.'s list50	
Steel Roofing-	
Steel Roofing-   Perfection	
Climax\$2.90 square	
The Lloyd Spanish Tiling\$4.50 square	
Metalic Shingles— Cushman's. \$2.00 square Merchant & Co.'s Spanish Tiles: Copper, 14 os. \$38.00 square Tin. \$9.75@\$11.25 square Steel, painted \$9.00 square	
Cushman's\$2.00 square	
Merchant & Co.'s Spanish Tiles:	
Copper, 14 os	
Tib	
Steet, painted	
Drain Pipe—Tuc.	
Discount from lat	
Paints, Oils, &c.—	
Deodorized Benzine	
trou raint, Bright Red D, y	
" Purnle 20 % 9124	
" Ground In oll, B. Red W B. 6424	
" Ground in oil, Red. W b. 6944	
" Ground in oil, Brown & b, 694	
Ground in oil, Purple b, 6	
Linaced Oll, Bouled, in Doll	
Mineral Paints	
Grange Mineral 846	
Pure White Lead in Oil	
Dry White Lead In bbls	
Red Lead, American 594(60)	
Pad Venetian in oil: sast'd cane Sks.	
kegg 714	
kegs	
Spirits Turpentine, in bbls., # gal@3344	
Asphaltum, Trinidad Refined, # ton\$15	
Apphiltum, Trinidad Refined, # ton\$45 Tarred Felt, 1 Ply, # 100 b	
Asphultum, Trinidad Refined, # ton. \$45 Tarred Felt, 1 Ply, # 100 h\$1.50	
Spirits Turpentine, in bbis. W gai@3346 Asphaltum, Trindad Redned, W ton. 25 Tarred Felt, 1 Ply. W 100 b	
Spirits Turpentine, in bbis. W gal@3346 Asphnitum, Trinidad Refined, W ton. 345 Tarred Felt, 1 Ply, W 100 b\$1.50 Tarred Felt, 2 Ply, W roll 108 sq. feet	
Spirits Turpentine, in bbls., \$\pi_{\text{sq}} \text{sq}_{\text{aphntum, Trinidad Redined, \$\pi_{\text{tot}} \text{sq}_{\text{tot}} \text{sq}_{\text{tot}} \text{25}, \text{def}_{\text{tot}} \text{27}, \$\pi_{\text{tot}} \text{30} \text{30}, \t	
Spirits Turpentine, in bbis. \$\pi_{\text{sq}} \text{sq}	

#### NEW YORK, DECEMBER 7, 1894.

The following quotations are for small lots.

Aluminum-
No. 1 Aleminum (guaranteed over 98%
pure), in rolling ingota
Small lets
Top lots
No. 1 Aluminum (guaranteed to be over ]
985 pure), in ingots for remelting : Small lets
100-b lots
Ton lots 3. 53¢
No. 2 grade (guaranteed to be over 94% pure Alamiaum), cast in ingets for re-
melting:
Bmall lots 7 7, 55¢
100-b lots. ₩ b, 53¢ Ton lots. ₩ b, 50¢
Antimony-
Halletl's₩ D, 8 ¢
Brass-
Planishednet
Roll and Sheet25@30%
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
List April 9, 1894.
Plain Round Tube. Per B.
4 in. up to 2 in
2-in. up to % in
41   5   5   5   5   5   5   5   5   5
6-16-in.up to % in
8-16-in.up to 1/2 in 1.00 19
8 malier than 16 n
3 in. and larger
8 in. and larger
Copper and Bronze Tubing-
26 W h more than brass.

Conductors-	1
Corrugated. Round or Square-	ı
Galvanized	Ľ
Tin	Г
Spiral Riveted-	ı
Galvanized50%	L
See also Elbows and Shoes; Eave-	ı
Trough Miters; Strainers, Con-	Ľ
ductor.	ľ
Conductor Strainers—See Strainers, Conductor.	
Copper-	ı
Bettoms, Pits and Flats 19¢ W D, net Ingot.	1
Lake	
Ansonia Grade Arizona10 ¢	1
Ansonia Grade Casting	П
Sheet and Bolt 154 W D. net, basis	F
Tubes - See Seamless Brass	ľ
Tubes.	Ľ
Eave Troughs-	Ŀ
Lap or Silp Joint, Galvanised80&101 Lap or Silp Joint Torne	1
	ı
Eave-Trough Mitres-	1
Lap or Slip Jointlist, net	
Elbows- Plain Adjustable-	
Tip70%	1
Gaivanised	1
Re-Tinned or Galvaniaed	1
Stove-Pipe-	1
Buffale Four-Piece.	ı
4% 5 516 6 7 inch. No. 1. \$9.70 .77 .82 .87 1.05 per doz.	ı
No. 261 .66 .71 .71	1
	•

i	Elbows and Shoes-	١
I	Flat Orimp, Tin	
I	Tin	
I	Galvanised	ı
ı	Corrugated.	ı
ı	Flat Crimp.	ı
	Galvanized	ı
	Tin	Ì
	Galvanized	l
		ı
	Iron, Sheet-	l
	Elack.	ĺ
	Common R. G. Cleaned American, American.	١
	Nos 10 to 16 . % b 2.25 2.60d	١
	Nos. 10 to 16.	ŀ
	Nos. 22 to 24 b, 2.45 2.806	ı
	Nes, 25 and 26, 2 b, 2,55 2.80# No. 27 2 b b 2 65 3.006	ı
	No. 27	l
	American B. B B. 44@4%4	l
	Russia, Planished, &c.	I
	Consults a Dussile account	I
	ing to assortment	Į
	Craig Pelished Sheet Steel * D 8/2#	l
	Craig Petished Sheet Steet b one	ı
	Galvanised.	ı
	В. В.	Ì
	Nos. 10 to 16	I
	Nos. 17 to 21	j
	Nos. 22 to 24. Nos. 25 to 28.	1
	No. 27	
	No. 28	
	No. 29 120	
	No. 80	
	Lead-	
	American Pig	Į
	Bar4@11/ce	
	Pipe	į

Tin Lined Pipe	SUE ZUN
Metal, Expanded—	
Manufacturers' list No. 5. Lathing Fencing, Painted Sheets Netting, Painted Sheets Door Mate, Gaivanked. Window Guards, Paneled. Tree Guards, Paneled.	155
Mitres, Eave-Trough Eave-Trough Mitres.	1—800
Paints, Oils &c	
Ocher, American	7 7 4 6 7 6 1 1 4 6 2 1 4 6 2 1 4 6 2 1 4 6 2 1 4 6 2 1 4 6 2 1 4 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1
Bolled	63. 6
Spirits Turpentine:	ø .30 ·
Putty: In barrels and 1/4 bbls	025
Booding Material, &c.: Asphaltum, Trinidad, Redued, ton	¥
Asphaltum, Rock, \$\Pi\$ ton Coai Tar Felt, 1 Ply, \$\Pi\$ b Coal Tar Felt, 2 Ply, \$\Pi\$ roll 108 sq	.,\$14,00 2¢ .f1. \$1,4256
Coal Tar Feit, 3 Ply, # roll 108	eq. ft.
Doodyna Ditah St hbl	\$1.85

### THE METAL WORKER.

#### NEW YORK AND CHICAGO.

#### Saturday, December 15, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK
PHILADELPHIA220 South Fourth Street.
BOSTON146 Franklin Street.
PITTSBURGH Room 509 Hamilton Building.
CHICAGO
CINCINNATIRooms 22-24 Pickering Bullding.
8T. LOUIS Bank of Commerce Building.
CLEVELAND

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Volume	X1:11	No.	21.
Index to	Reading	Matter Page	57.

#### Heating and Ventilation.

It is too late in the day for any one in the heating trade to take the position, as some have done lately, that heating and ventilation are distinct arts, and that on this account they ought to be considered separately and practiced separately. An inventor of a hot water boiler recently avowed that he was going to heat buildings only by direct radiation, except in cases where he was compelled to use indirect radiators. He gave as his reason for this resolution the fact that, in indirect heating, trouble is often experienced through the freezing up of radiators when proper attention is not given to the prevention of this accident, and, also, that indirect heating costs more both in the first instance and in current expense for fuel than direct heating, and consequently he should direct his salesmen to discourage indirect heating as much as possible in securing contracts. He soon found, however, that he could not ignore the question of ventilation, and that in order to secure contracts he had to use indirect radiation. Probably others have had a like experience. Not long ago there appeared in an English paper what was intended to be a caustic criticism of an article written by an able writer on the subject of ventilation. The would-be critic took the ground that the consideration of ventilation ought to be summarily divorced from heating plans and that the sooner this was done the better it would be for the heating trade. That this expression of opinion was considered by some as being not utterly valueless is proved by the fact that it was quoted in other publications with approval. The fact is, however, that the proposed separation cannot be brought about, because the kind of heating now demanded cannot be accomplished without ventilation; and the converse is also true that in cold weather the ventilation of dwellings

and other buildings too small to justify the cost of mechanical ventilation cannot be effected without heat.

Business Prestige.

Prestige is defined as being that moral influence which past successes. as the pledge and promise of future ones, breed. It is directly dependent upon the character of the individual or the corporation, and being a moral influence must of necessity be the result of honest methods and square dealing. It is the "good will" which is left to the succeeding partner when a partnership is dissolved. It concerns the small store keeper as well as the extensive corporation. The store keeper may well study its meaning, for it is something for which he seeks and upon which he feels that his established business must stand. He can only attain to it, however, by the fairest dealing, the strictest attention to business, and the establishment of perfect confidence in his word and his goods. Many concerns, however, built up by the untiring energy of a single individual, fail to appreciate that the character thus established cannot remain untarnished if they resort to doubtful methods. A family name is not enough to maintain the honor of the concern. The son, if he inherit the father's business, must neither fall back npon the father's character, nor merely strive to live up to it. He should go further and endeavor to add luster to that name, to make it even more a sign of integrity, of lusiness sagacity, and of upright dealing. He may more than once be called upon to choose between great riches and honor that demands an honest life, but if he would plant his business upon bed rock he must ever seek for honor, and then the riches will follow.

#### As to Business

The settlement by Congress of the long drawn out tariff question, and by the people of the November elections, has not been followed by any such wonderful improvement in the general business of the country as it was confidently predicted by the knowing ones would surely develop thereupon. A moderate revival of activity did occur in the middle of last month: but this has again simmered down into a condition very similar to that which has prevailed for so many weary months; a mere hand to mouth buying of commodities for the supply of current needs. As regards the trades with which The Metal Worker is more particularly concerned, this statement is especially true. Week after week the reports have been almost identical, "Nothing new," "Very quiet," "Inquiry moderate." "Orders small and

slow, and so on, in a monotonous chorus of reiteration. It is true that December is nominally a dull month in the metal trades, on account of the annual stock taking and adjustments of business at the close of the year. But the general conditions of business have been so peculiar this season, stocks being of the very lightest character and the presumed needs of consumers greater than usual, after so many months of apathy, that it was expected. December would be a much more lively trade month, than customarily. That such has not been the case generally is proved by the clearing house returns from all the principal cities of the United States -a very reliable gauge of the volume of business. They exhibited for the first week of December an increase of only 4.6 per cent, compared with the corresponding week of last year, which was one of peculiar dullness; while as compared with the same week of 1892, a fair average one, the decrease was about 20 per cent.

#### The Outlook.

Nevertheless, the tone of the trade reports from nearly all quarters is distinctly more hopeful as regards the prospects for business after the first of the year. Stocks in retailers' and consumers' hands are so low that buying must, it is claimed, be more liberal. Money is plentiful and cheap, and much that has been lying idly in banks and trust companies is waiting to be invested just as soon as signs of a revival of industrial and commercial activity develop. There has been progress already, as compared with three or four months ago, but it has been very slow and so gradual as in some cases to be almost imperceptible. Nevertheless the encouraging fact remains that it is progress and not retrogression. Valuable experience has been gained, and lessons of trade economy have been learnt which are worth some temporary loss and suffering. Certainly prices are low, and are likely to remain lower than they were a year ago. Wheat and cotton are down to the lowest figures ever known. All manufactured goods have dropped in price anywhere from 5 to 25 per cent. in the past year or two. Wages, too, have fallen; but so has the cost of living, so there is compensation in the lower rates.

The cotton spinning industry has made great headway in the South during the current year. The latest New England concern announced to move thither in order to be nearer the source of supply of the raw material is the Massachusetts Cotton Company, who have determined to build a Southern plant to cost \$600,000, with a capacity of 30,000 spindles. The actual location is as yet not decided on.

# THE LETTER BOX.

Some Tin Plate Inquiries.

From A. S. R., New York.—What is the difference between bright plates and terne plates? What kind of sheet metal do the manufacturers use in making tomato and other cana, the cheaper or the better grade of plates?

Answer.—The difference between a bright and terne plate is in the metal that is used for the coating. A bright plate is coated with pure tin, while the terne plate is coated with lead, or rather with lead having a small proportion of tin mixed with it, the amount varying with different plates. The plates used by can manufacturers are the cheaper grades of bright plates—that is, for the ordinary vegetable can.

#### Insufficient Air Supply.

From A. H., Milwaukee, Wis -1 would like to be informed through the columns of The Metal Worker of a remedy for the following trouble: I set up a portable heating furnace a year ago the working of which has puzzled me ever since. The furnace in question is of sufficient size to heat the house, is prowided with a double casing with a 1inch space between the two walls, yet the outer casing becomes so hot the hand cannot be held on it. When first set up the furnace was placed over a pit and connected by means of a 12 x 30 inch cold air box with a north-west window. The stacks to second west window. The stacks to second floor are 5 x 13 inches inside and provided with 8 and 9 inch connections, while the first floor runs are all 10 and 12 inch, with registers in proportion. The rooms are all ventilated and most of the ventilators go into flues direct, while some connect with flues in the while some connect with nues in the attic. These flues all have a good draft. There are two grates on the first floor and one on the second. The doors on both floors are kept open, so there is a free circulation of air. While the furnace has a good draft, it is impossible to heat the house properly during zero weather. The cold air box was changed to a weat window, with no better results. I then took a 14-inch return from front and a 10-inch return from rear hall, run them into furnace pit with elbows to turn up, so as not to interfere with the air from outside. The returns both worked a little, but not as desired, the casing being as hot as before. After the above change had been made I took the furnace down, filled up the pit, cemented level with basement floor, reset furnace and connected the circulating returns as before. No improvement resulted from this change. I will state that one trial was change. made before the cold air box was changed, with a west wind blowing at the rate of 25 miles an hour, yet the furnace casing remained as hot as ever. I have set furnaces for many years, but never before experienced such a difficulty.

Answer. — After considering the trouble reported from the information

given, which is not all that could be desired, it seems to be a clear case of an insufficient cold air supply. This is given as a 12 x 30 inch duct having an area of 360 inches. Stacks to the second floor are spoken of having 8 and 9 inch connections, and it is supposed there are at least three of each size. The first floor connections are said to be all 10 and 12 inches, so it may be presumed that there are at least two of each size, with a total area as follows:

Three 8-inch pipes, area 50 inches each. 150
Three 9-inch pipes, area 63 inches each... 189
Two 10-inch pipes, area 78 inches each.... 156
Two 12- inch pipes, area 113 inches each... 226

Having a combined area of .... .......... 721

Air taken at 22° would have to be heated to about 550° to double in bulk. which would be necessary to fill the above mentioned pipes, which are only supposed, as the number and size of the pipes actually in use are not given in the description. A cold air duct 20 x 30 inches, having an area of 600 inches, would be nearer right. Some furnacea, however, are "hide bound"—that is, the radiator leaves too little space between it and the casing, and the openings through it are too small to let enough air pass through to furnace to absorb the heat and carry it away. A common report then is that the air is excessively heated and varies in volume at the registers. In such cases the only thing to do is to make a casing of larger size so that plenty of air can pass through. A common error is in the idea of the velocity of air passing through furnaces. While the statement that the higher the temperature the higher the velocity is true, the speed never approaches that of a gale, and, unless the air spaces are generous, sufficient air cannot pass to carry away the heat. Sometimes when a furnace is large the heating pipes are too small to let the air pass off fast enough to keep the furnace cool. An 8 inch pipe with an area of 50 inches is hardly the size to feed a 5 x 13 atack having an area of 65 inches. A 9 inch pipe running horizontally, having an area of 63 inches, is not any too large if the bottom connection is properly made. It is not stated whether the first floor registers are in the aide walls or in the floor. If they are in the side walls and the stacks are 5 x 13 inches, it is not strange that the house is not well heated, particularly as ventilating flues are in each room. The location of the ventilating registers is not given. If they are near the ceiling and open it will require much larger pipes and stacks to do the heating.

The experiments of "A. II." have been in the wrong direction. He should give his air supply an area of threefourtha to seven-eighths of the combined heating pipes. Then if the casing gets hot he should either increase its diameter, so that there will be at least 3 inches between it and the radiator, or put a No. 20 black iron casing between them, arranged so that it will not obstruct the upward air currents. If necessary, after this is done, the furnace should be covered with some insulating material. Our readers are invited to make free use of The Metal Worker in describing their experience in furnace heating bearing on this inquiry.

#### Distinguishing Iron and Steel.

From Enamel.—It is very important for us to be able to distinguish in a simple manner whether iron or steel sheets are being delivered to us. Can you give us such a test?

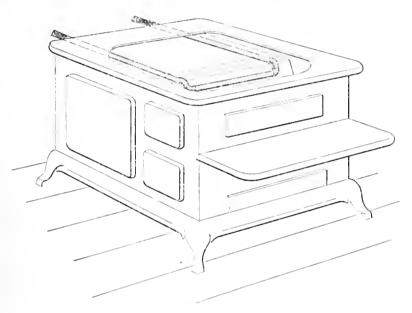
Answer.-We know of no better way than to try the method of doubling up pieces of the sheet metal you wish to examine, hammer them flat and examine the bent surface. There are two signs which mark the difference between the two. The iron is duller, has less luster than the ateel. If you feel the bent aurinces you will notice the steel feels smoother under the touch, or slight rubbing, than the iron. This is especially pronounced in the thicker pieces. This difference in feeling is the greater the more ordinary the iron is. With very thin sheets this difference naturally disappears more or less, and we have to call in the aid of a pocket lens. With the help of that we notice that the surface of the iron is rougher than the aurface of the atcel, even in the best aheeta, due to the difference in atructure of the two metals. The best iron and the best steel (sheet) come nearest each other, but there is still some difference. On close examination you will notice that the iron has a finely grained skin, as if there were pores. This contributes to its duller luster. On steel the scale comes off more easily, too. There was a time when sheet steel could be distinguished from sheet iron by its "ring" or sound when struck with a hammer, just as some experts can pretty nearly tell a passenger axle from a freight axle if laid among a plie on the ground and atruck on the journal, by lta "ringing" or higher pitch and the feeling of a "spring," as they call it. So it was with sheet steel. But now this distinguishing mark does not exist any longer. In its make up and working qualities it is so much like best sheet iron that, as the foreman of the tin shop of a great establishment states, no one is able to tell which is which.

#### Water Front or Pipe Coil.

From "OLIVER TWIST."-In The Metal Worker of November 10 "S. & S." of Massachusetts describes a little trouble they have with a water front, which since its insertion has prevented the range from baking as it dld pre-viously. They ask if a coil would not viously. do the work better and allow the oven to be properly heated. The sketch herewith shows how a coil may be inserted in a range without taking up much room in the fire box and without interfering with the heating of the oven. Instead of putting the pipes through the end of the fire box, as is usually done, they are taken through the back of the range and continued along directly on the top of the oven plate and dropped down in water heater, about which he inquires, is manufactured in all sizes by Irving M. Seamans, 377 Maryland atreet, Buffalo, N. Y. The apparatus may also be obtained from Howell, Shanklin & Dowman, 75 Capital street, Charleston, W. Va.

#### Flow of Water Through Pipe.

From C. T., Nora Scotia.—A short time ago you explained in The Metal Worker how to find the quantity of water a pipe would deliver. Unfortunately, the method was so complicated that common tinkers could make no use of it. If I was able to use algebra in that way I presume other parts of my education would be equal and I would not be a tinker but au "M. E." or a "C. E.," or something after that style. My object in writing you to day is to ask how much water a 1-inch lead pipe will deliver per hour, the pipe being 318 feet long. The first 100 feet is nearly



Water Front or Pipe Coil.

front of the fire back, as shown in the sketch, by means of elbows and close The writer has a 30-gallon nippers. boiler now thoroughly heated after this fashion, except that the pipe is not dropped down into the fire box, but continued, as shown by the dotted lines, across the oven plate, and which has a 30-foot run of pipe between the range and boiler, in addition to five elbows on each line. The whole of the piping is 4 inch. This method of connection has been used satisfactorily, with the range boiler close to the range, or in a bathroom a considerable distance away upatairs. A water front or back reduces the capacity of a fire box to a great extent, and, naturally enough, the effect of a water front on the heat-ing of an oven would be more marked when added after the range had been used than though it were in position from the first. By this plan, therefore, it is seen to be practicable to heat the water without diminishing the size of the fire box or impairing the heating of the oven.

#### Seamans' Automatic Water Heater.

From X. Y., New York.—Replying to the inquiry of C. T. Maguire, Hornellsville, N. Y., that appeared in The Metal Worker of December 8, I beg to inform you that Seamans' automatic

level, then there is a fall of 14 feet, the only power being gravitation.

Answer .- We are sorry that our correspondent was not able to make use of the article that appeared in The Metal Worker on the flow of water through pipes, and we are afraid that there are a good many other readers who are in a similar difficulty. As a matter of fact, however, the formulas which we gave do not require any very great acquaintance with algebra, and the subject was put in the simplest way possible. There are certain rules to be followed in calculating the flow of water which made it necessary to use terms and methods that are perhaps hard to understand. If, however, it could be put in any simpler way, we would most assuredly have done it, and it would be a great advantage if a very simple rule could be deduced for figuring the flow of water through pipes. If our correspondent saw some of the complicated formulas frequently used by engineers he would not complain of the comparatively simple formula which we presented. If he will follow the explanation that accompanied the formula he | Territory.

will see that the only difficulty is ln extracting square root, and this is a process that can be easily mastered. Had he been given a formula which involved the extraction of fifth roots it would have been quite a different matter.

Replying to our correspondent's direct inquiry, we have figured out the flow of water in the pipe he describes, according to the formula given in the article referred to, which is:

$$\int_{-L}^{\frac{1}{d^2-4}} \times 4.71.$$

The volume of water per hour according to this rule is found to be 444 gallons. It must be borne in mlud, however, that these are United States gallons, containing 231 cubic inches. The imperial gallon contains 277 274 cubic lnehes. Working out the same problem by means of tables in the book "Practical Hydraulics," by Thos. Box, we find the volume of water is about 408 gallens per hour. The tables alluded to cover a number of pages in the book, and were worked out by difficult equations involving the use of logarithms. Even with the table, moreover, formulas have to be used.

#### Cleaning Solder.

From R. Cambridge, Mass.—In the Letter Box of The Metal Worker of November 24 is an inquiry from "W. D. V.," Southampton, N. Y., who writes about solder which is supposed to have zinc in it, but which does not become purified by the use of sulphur. Probably the trouble is not zlue, but the solder is impregnated with iron. Who can give any suggestions as to moving the iron?

#### is it a Leak?

From I. N. PHILLIPS, Nashville, Tenn.—Referring to the inquiry in the Letter Box of December 1 from "Subscriber," I would suggest, in addition to what you say, a possible leak in the stop cock at the pump. I had the same trouble once and found it there.

The November foreign trade returns of the port of New York show a slight decrease in exports as compared with November of last year. As given in the Journal of Commerce during the eleven months since January the aggregate movement (specie excepted) amounts to \$709,269,457, against \$831,840,108 last year, a decrease of \$122,570,651. This decrease is shared in by both imports and exports, the latter being \$14,756,934 less than last year; and imports \$107,813,717. The decrease in imports is mainly due to the large falling off of free goods, which are \$218,852,163, against \$276,361,049 a year ago. The specie movements show imports \$19,705,514, against \$65,467,944 last year, and exports \$116,628,756, against \$99,768,759 Customs receipts have reached \$80,932,299, against \$109,788,303 for the corresponding 11 months in 1893.

Natural gas is reported to have been struck in Lincoln County, Oklahoma Territory.

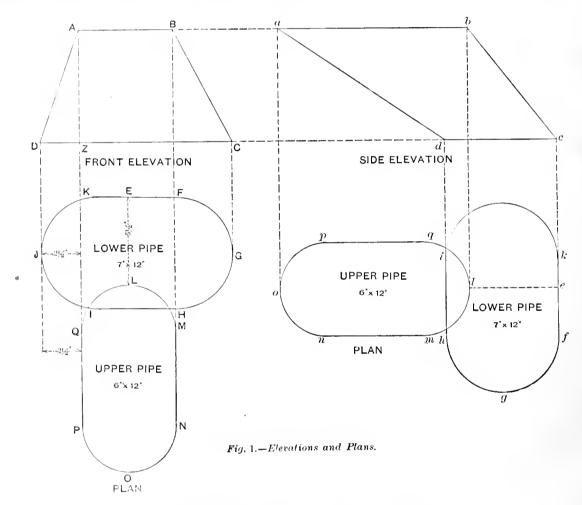
# THE TIN SHOP.

Pattern for Offset, Oblong to Oblong.

From G. F. M., Brooklyn, N. Y.—Will The Metal Worker publish a method of obtaining the pattern for an article which I would call a combination reverse offset? I wish to connect two hot air pipes which are oblong with semicircular ends. The lower pipe is 7 x 12 inches and the upper 6 x 12 inches. The offset is to go in a very tight place, so in order to make a good job I would like to have the pattern in

lower pipe is shown to be  $5\frac{1}{2}$  inches. The side elevation of article is represented by a b c d, the plan of upper pipe by l m n o p q and the plan of lower pipe by f g h i k. The method we shall use for obtaining the pattern will be that of triangulation, and to prevent a confusion of lines duplicate plans are shown in Flgs. 2 and 3. The upper and lower profiles have been divided into parts and connecting lines drawn, as shown by F L, G M, G N, H O, I O,

as shown by the solid lines 1 2, 3 4, &c. Connect points as shown by the dotted lines drawn between 1 4, 3 6, &c. In Fig. 3, divide N O P and G II, I J in a similar manner, and connect the points, as shown by the solid and dotted lines. To draw a diagram of triangles representing the solid lines in F G M L of Fig. 2 proceed as follows: Draw a right angle, as shown by R S T in Flg. 4, making R S equal to the straight hight of the article, as indi-



PATTERN FOR OFFSET, OBLONG TO OBLONG.

one picce. As shown in the plan, the side of the lower pipe faces the same way as the end of the upper pipe. The end of the upper pipe is  $5\frac{1}{2}$  inches from the side of the lower and the side of the upper pipe is  $2\frac{1}{2}$  inches from the end of the lower.

Answer.—In Fig. 1, let A B C D represent the front elevation of the article, F G H I J K the plan of the lower pipe and L M N O P Q the plan of the upper pipe. The horizontal distance from the side Q P of upper plpe to the end of lower pipe is shown to be 2½ inches. Also the horizontal distance from the end L of upper pipe to the side K F of

PJ, JQ and KL. The connecting seam or joint is shown by EL. Then the article is composed in part of the triangles KLF, MGN, HOI and JQP. The triangle KLF is divided into two right angled triangles by the joint line LE. The article also contains the sections LFGM and KLQJ of Fig. 2 and HGNO and IOPJ of Fig. 3.

As the pattern is to be obtained by triangulation, divide Q L M and J K, F G of Flg. 2 into any convenient number of equal parts, as indicated by the small figures. Connect these points

cated by A Z of front elevation. Measuring from S, act off on S T the lengths of solid lines in F G M L, Fig. 2, including L E, which will give the slant hight corresponding with b c of the side elevation. Connect the points in S T, Fig. 4, with R, as shown by the solid lines. We have thus obtained a number of triangles, the hypotenuses or longest sides of which represent the distances from points F and G in the lower pipe to corresponding points between M and L of upper pipe, as indicated by the solid lines in plan. For the diagram of triangles representing

the 'dotted lines in F G M L, Fig. 2, draw the right angle R<sup>1</sup> S<sup>1</sup> T<sup>1</sup>, as shown in Fig. 5, making R<sup>1</sup> S<sup>1</sup> equal to the straight hight of the article, as derived from A Z of front elevation. Measuring in each instance from S<sup>1</sup>, set off on

The diagrams of triangles in Figs. 8 and 9 are derived from the solid and dotted lines in I O P J of Fig. 3. In Figs. 10 and 11 are shown the diagrams of triangles derived from the solid and dotted lines in J Q L K of Fig. 2.

of triangles in Figs. 4 and 5. The stretchout of pattern from E to E is derived from the plans of lower pipe in Figs. 2 and 3, as the stretchout of pattern from L to L' is derived from the plans of upper pipe in Figs. 2 and 3.

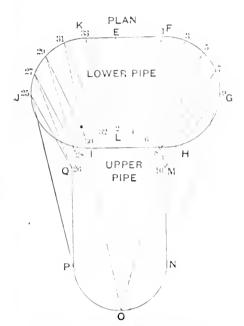


Fig. 2.-Plan Divided for Triangles.

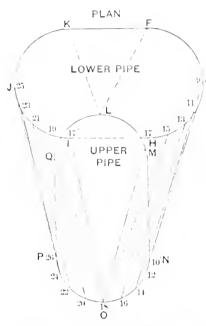


Fig. 3 -Plan Divided for Triangles.



Fig. 4.—Triangles Corresponding to Solid Lines in F G M L of Fig. 2.

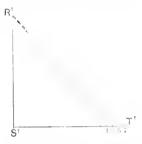


Fig. 5.—Triangles Corresponding to Dolted Lines in F G M L of Fig. 2.

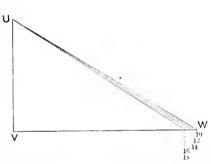


Fig. 6.—Triangles Corresponding to Solid Lines in G N O H of Fig. 3.

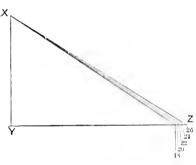


Fig. 8.—Triangles Corresponding to Solid Lines in I O P J of Fig. 3.

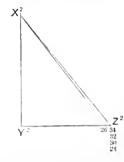


Fig. 10.—Triangles Corresponding to Solid Lines in J Q L K of Fig. 2

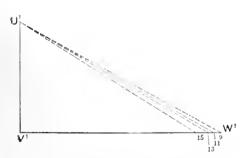


Fig. 7.—Triangles Corresponging to Dolled Lines in G N O H of Fig. 3.

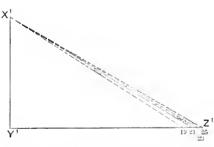


Fig. 9.—Triangles Corresponding to Dotted Lines in I O P J of Fig. 3.

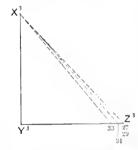


Fig. tt.—Triangles Corresponding to Dotted Lines in JQ L K of Fig. 2.

PATTERN FOR OFFSET, OBLONG TO OBLONG.

8' T' the lengths of dotted lines in F G M L of Fig. 2, and from the points thus obtained draw lines to R'. The diagrams of triangles shown in Flgs. 6 and 7 are constructed in a similar manner. Those in Fig. 6 correspond with the solid lines and those in Fig. 7 with the dotted lines in G N O H of Fig. 3.

In Fig. 12 is shown the pattern of article derived from the plans in Figs. 2 and 3, and the diagrams of triangles in Figs. 4 to 11. The attetchout of F G and L M of pattern is derived from F G, L M of plan, Fig. 2. The distances between points in F G and M L of pattern are derived from the hypotenuses

As previously stated, two plans were employed in order to avoid a confusion of lines. Then for the pattern shown in Fig. 12 proceed as follows: Draw any line, as E L of pattern, in length equal to R E of Fig. 4, which gives the actual distance from E in the base to L in the top, as also shown by b c of side ele-

vation and indicated in corresponding plan by l  $\epsilon$ . With E of pattern as center, and E F of plan as radius, atrike a small arc, F, which intersect with one struck from L of, pattern as center, and R T of Fig. 4 as radius, thus establishing point F of pattern. With point F

one size and fit; there are no edges or joints to rust; no bowl to work loose; strengthens the weakest part of a can; is perfectly smooth inside and out. This neck is made of heavier material than pieced necks, and open hearth ateel is used exclusively, in order to secure can stock that is proof against

the country's wage workers. In regard to the question of arbitration, Mr. Gompers remarked that disputes between the workers and employers might generally be adjusted by that method; but if they were it would only come when the workers were better organized, when their power and their rights had

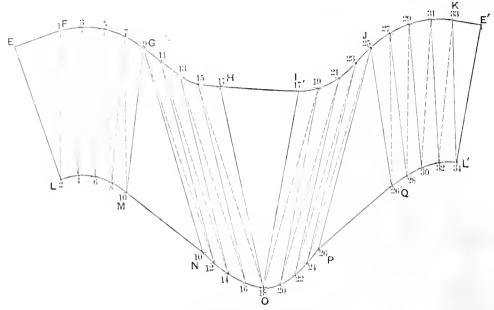


Fig. 12.-The Pattern Shape.

PATTERN FOR OFFSET, OBLONG TO OBLONG.

of pattern as center, and R11 of Fig. 5 as radius, strike a small arc, 4, which intersect with one struck from point L of pattern as center, and L 4 of Flg. 2 of radius, thus establishing point 4 of pattern. With point 4 of pattern as center, and R 4 of Fig. 4 as radius, atrike a small arc, 3, which intersect with one struck from point F of pattern as center, and F 3 of Fig. 2 as radius, thus establishing point 3 of pattern. Proceed in this manner, as above described, and as indicated by the solid and dotted lines, until the points G M of pattern are located. With M of pattern as center, and M N of Fig. 2 as radius, atrike a small arc, N, which intersect with one atruck from G of pattern as center, and U W of Fig. 6 as radius, thus establishing point N of pattern. Proceed in the manner indicated until the remaining points in the pattern are located. It will be observed that the letters and figures in pattern designate points similarly indicated in Flgs. 2 and 3. Lines traced through the points obtained as directed, and as shown from E to E' to and L' to L, will produce the desired pattern.

New Seamless Milk Can Neck.

The Chicago Stamping Company, Congress and Green streets, Chicago, have made a new departure in the milk can line, and are now manufacturing a seamless neck, which is herewith illustrated. In offering it to the trade the manufacturers enumerate a number of advantages, among which are the following: There are no seams to solder or to come unsoldered; it is always of

cracking. The company have just issued catalogue E, which covers their milk cans and milk can stock.

The fourteenth annual convention of the American Federation of Labor was opened at Denver, Col., on Monday, under the presidency of Samuel Gompera. The tone of the opening speeches, according to the telegraphic press reports, was of a more hopeful and moderate character than is usually looked for at the annual gatherings of the Federation. Mr. Gompera, in his presiden-

received greater recognition. The first atep must, he said, be organization, the second conciliation; the next, possibly, arbitration; but compulsory arbitration, never.

At the annual meeting in Chicago, last week, of the trustees of the great drainage canal now under construction, connecting Lake Michigan with the tributaries of the Misaissippi, President Winter of the board announced that the entire work will be completed by the end of 1896. The total expenditures since the inception of the work



New Seamless Milk Can Neck.

tial address, said that he believed this country was within a year of an induatrial revival which, in activity and intensity, would surpass that of any previous period. With this turn in industry would come, he thought, the opportunity for the laboring man to reap the harvest for the wage workers; and he urged them to concentrate their efforts, and, by means of better organization and united effort, secure the improvements so necessary for the wellbeing of

have been \$10,193,130, and the trustees have on hand \$2,466,000, cash. It is estimated that \$27,000,000 will be required for the whole enterprise. Over 6000 men are at present employed on the work.

Purdue University has received, as a gift from the Baldwin Locomotive Works, a pair of beautifully finished model Vauclain compound locomotive engines.

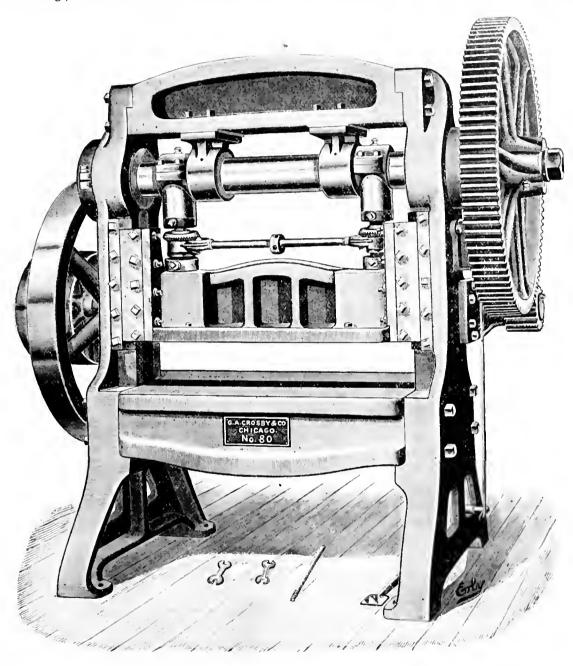
#### The Crosby Power Press.

A new back geared, straight lined power press adapted for cutting out large articles in tin, brass, copper, sheet iron, steel, &c., has been brought out by G. A. Crosby & Co. of Chleago. The shaft is made of steel and has journals each side of the crank to prevent springing. The gears are all cut and have broad and large teeth. The cross head runs in V bearings, which are made ad-

the pressure of the downward stroke, would be driven up so forcibly as to oftentimes break or derange the mechanism of the clutch, or, carrying it past the highest point before the clutch had caught on, allow it to deseend again by its own weight, making accidents much more liable to occur. This brake acts only at the time required to prevent a sudden acceleration in the motion of the cross head—that is, from the time the punch

slide (as desired), 3 inches; adjustment of slide, 4 inches; weight complete, about 18,500 pounds.

The Department of State has received programmes of the international exhibition of hotel and traveling accommodations to be held in Amsterdam next summer. The scope of the exhibits will embrace a very wide field, including architecture, shipbuilding, rail-



THE CROSBY POWER PRESS.

justable for wear. The pitmans are made, with broad bearing surfaces and are adjusted by means of a cross shaft, which is provided with a gear and pinlon at each end that are closely fitted, so there is no back lash. This permits of adjusting both pitmans exactly alike. The press is provided with an automatic brake designed to prevent the sudden reverse motion, which would otherwise be communicated to the cross head! when operating dies which are constructed with powerful steel or rubber springs under the lower die. Unless overcome or balanced in some manner, the cross head, after being released from

and cross head start upward until the punch leaves the drawing ring, which is usually about one-quarter of a revolution of the shaft, thus leaving about three quarters of the revolution of the shaft open or free from friction or use of power. The press is so arranged that it may be taken apart to facilitate transportation, handling and setting up. The main dimensions of the press, which is built by G. A. Crosby & Co. of Chicago, are: Opening in bed (varied as desired), 20 x 43 inches; distance between uprights, 53 inches; distance from bed to bottom of slide, when latter is up, 9½ inches; motion of

way construction and equipment, aerostatics, furniture, china and pottery, tableware, paper, blankets, and liquora, food, confectionery, fisheries, plumbing, medicine, machinery, electric lighting and signaling, gas and oil lighting, heating, art industries, geography, appliances, gardening, insurance and many other branches.

British Board of Trade returns for November show an increase of \$2,785,000 in imports and a decrease of \$2,064,000 in exports, as compared with the corresponding month of last year.

### STEAM AND HOT WATER.

#### Combination Heating.-II.

BY J. W. HUGHES.

One of the first forms of heaters fitted in the hot air furnace was the simple spiral coil, modified to suit the requirements of the furnace in which it was to be employed. Then followed various combinations of pipes and fittings, as the fancy of the designer and the requirements of the case demanded, and the furnace casing F; B came out at the top, and the coil was fitted in the dome of the heater above the fire door. This kind of coil was further modified by having one or two turns taken around the inside of the fire pot, as shown in Fig. 2. This was done when it was desired to increase the efficiency of the heater, or rather give it greater power, as the furnace was very efficient, but had its limitations. These engravings will give a correct idea of the simple apiral coil. welding seam had opened. It is best in making these coils to use lap welded pipe, but most of them were made of the ordinary butt welded article. The seam of the pipe must be kept to the inside, not directly in the center, but more toward the top or bottom so as to divide the strain. While the workman divide the strain. While the workman was bending the heated part of the pipe his helper was employed in pour-ing water on such portions as had assumed the proper shape or showed a

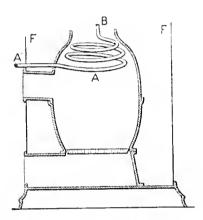


Fig. 1 .- Coil Heater.

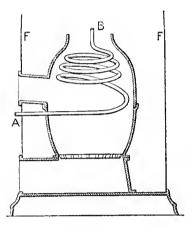


Fig. 2.-Coil Healer.

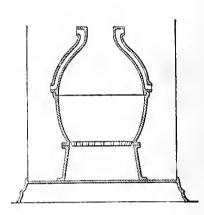


Fig. 3.-Hollow Dome Healer.

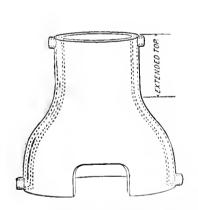


Fig. 4.—Hollow Dome with Extended Top.

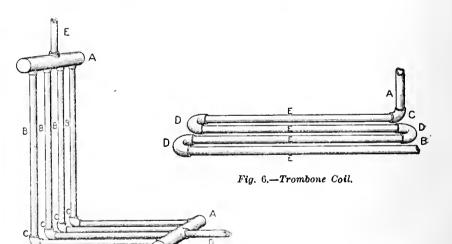


Fig. 5 .- Pipe Coil for Healer.

#### COMBINATION HEATING.

finally came east iron heaters of different designa. A manufacturer, M. C. Ryan, had made in England a wrought iron hollow dome that fitted on the fire pot of his furnace, proving a most effective heater and carrying as much as 1300 to 2000 feet of pipe in coils and radiators. These domes were welded together, being very handaome pieces of work. The illustrations pre-sented give a better idea than could be conveyed by descriptions of the appearance of some of the heaters referred to. Fig. 1 shows a plain apiral coil made of 1-inch or 11 inch pipe, the part A extending through the side of

The coils were bent by heating about a foot of the pipe over a forge fire, a piece of pipe having previously been buckled on to the end to aerve as a lever and give a cool bandle to the workman at the beginning of the operation. What would be the finished ond of the coil, being simply a long straight pipe, also served both as a lever and handle. As the coil neared completion a piece of pipe had to be acrewed on the other end, being removed when the work was done. Great care had to be exercised in selecting a perfectly sound piece of pipe, as it was very annoying to find, after spending time on the coil, that the

tendency to flatten or bend in the wrong place. Care was also necessary to get an even heat. A piece of 1-inch rod wire was ordinarily used by the work-man as a guide or pattern The pipe was generally bent on the anvil, a pin inserted in the hole serving as a fulcrum to assist in the operation. Many attempts were made to bend the pipe cold, also to make the coils on an iron plate or wheel, but after a short experience the workman became so expert in handling the pipe in the simple way described that the more elaborate appliances were discarded.

Care must be taken to have the plpe

of which the coil is made cut to the right length, as it is an awkward job to cut the pipe when the coil is nearly completed. For making extra long coils it was sometimes necessary to lengthen the pipe by screwing on another piece with a buckle, but the bending and heating at the point where the buckle was attached was an ugly job, the coil having to be left nearly straight at that point, the heat furthermore causing the buckle to slacken and leak. This difficulty was overcome, however, when the coil was finished by filling it with a weak solution of sal ammoniac water. After standing for a few hours the coil was emptied of water and the joint allowed to rust tight, care being taken to have the two parts held securely in

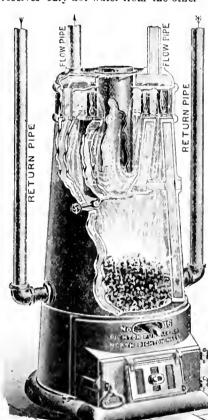
inch pipe and fittings. It was aug pended over the fire and the pipes canted so as to drive the air out of the flow pipe A as the coil was being filled with water. Fig. 7 shows another form of coil, which was only used when nothing simpler would answer the purpose, as it was difficult to make and invariably had to be rusted up in order to make it tight. It was bent one pipe at a time by the process already alluded to, and was usually constructed of 1inch pipe and ordinary ells and return bends.

Enough has been written to make the reader familiar with the different forms of coils used, but the subject is hy no means exhausted, as the coil heaters were as numerous as the different

Brown's hot water heaters. These included heaters for D. A. January, Giles F. Filley, Col. I. B. Brandt, John Finney, William Finney and Captain Some of the original plants Stetmins. are still in operation and giving good satisfaction. In other eases the buildings have been torn down or remodeled. Mr. Cezzens would be glad to hear from anybody in the West who had creeted indirect hot water heating systems previous to the dates mentioned.

#### The Winthrop Hot Water Heater.

In the accompanying illustration we show a broken view of the Winthrop hot water heater, just brought out by the Dighton Furnace Company, North Dighton, Mass. Referring to the illustration, it will be seen that no bolts, gaskets or calked joints are used in its construction, each water jacket being connected with the dome by wrought iron nipples and lock nuts. This style of construction, it is pointed out, reduces the chances of leakage to a minimum. By connecting each water jacket to the dome it is thus made the distributing reservoir, the whole bottom side of which is subjected to the direct heat of the fire, and at the same time it receives only hot water from the other



Winthrop Hot Water Heater,-Broken View.

portions. This, it is stated, permits the discharge of hot water almost immediately without walting to heat the entire system gradually. Another feature alluded to is the central draft.

The Winthrop has a return flue and vertical circulation, and the angle at which the interior of the apparatus is exposed to the fire, it is pointed out, makes it virtually self-cleaning. At present only one size of the heater is manufactured. The diameter of fire pot is 16 loches; hight of heater, 47 loches, and adapted to supply 350 square feet of heating surface. Larger sizes are in course of construction.

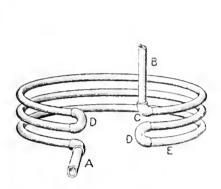


Fig. 7.—Cylindrical Coil.

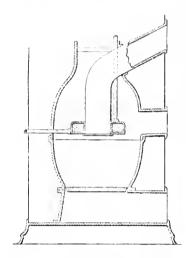


Fig. 8.—Heater with Feed Chamber Water Ring.

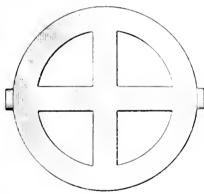


Fig. 9.—Cast Water Chamber for Dome.

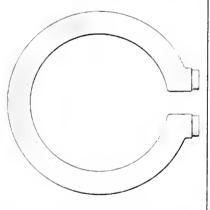


Fig. 10.-Cast Water Chamber for Dome.

#### COMBINATION HEATING.

the proper position, as once the joint had rusted it was impossible to turn the pipe in the buckle.

Fig. 3 shows the appearance of the hollow wrought iron furnace dome above referred to. Fig. 4 is a similar heater, with the top part extended higher, to increase the heating surface. Fig. 5 shows a form of pipe coil set up over the fire, care being taken in fitting this and other forms of heaters not to block the firing door or interfere with the working parts of the furnace. The heater, Fig. 5, was usually made with ordinary fittings, the flow and return pipes being 1\(\frac{1}{4}\) inches and the pipes B B 1 inch. Of course there was no objection to larger pipe being used when the circumstances demanded it. Fig. 6 presents a view of an ordinary trombone coil, being generally made of 12-

kinds of hot air furnaces. The in-genuity of the foundrymen early brought into the field various kinds of cast iron heaters, one of these being a hollow ring forming the end of the feed chamber, as shown in Fig. 8. Figs. 9 and 10 present other forms of simple castings made to go into the dome of furnaces over the fire place of a coil. Still other forms were in use, but for the purpose of illustrating the general principles the sketches presented serve the purpose.

WILLIAM F. COZZENS, St. Louis, Mo., writes that he is still in the trade with the Royal hot water heater at the masthead. He also calls attention to the fact that in the years 1858-9 he erected in his city a number of hot water indirect heating plants, using

to work together. Referring to Fig. 1,

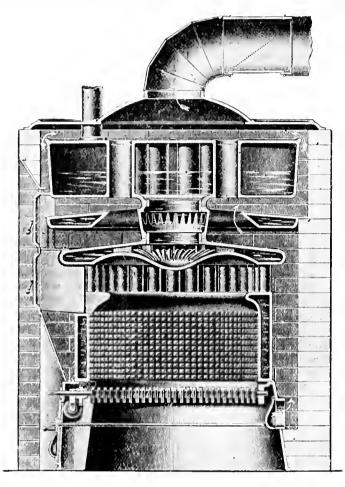
which shows the internal construction

#### All Right and Volunteer Bollers.

The accompanying illustrations show sectional views of the All Right and Volunteer boilers, made by the William

combustion is indicated by the arrows in the engravings. The company make a base for their brick set boiler, so that

different sections being used alternately. The course of the products of it can be all set up ready to connect it



All Right and Volunteer Boilers .- Fig. 1 .- Sectional View of All Right Boiler.

H. Page Boiler Company, Norwich, Conn. Fig. 1 is a sectional view through the All Right boiler, Fig. 2 being a separate view of the fire pot, while Fig. 3 is a section of the Volunteer boiler, showing the hot water regulation tank. The All Right boiler is for brick setting, as indicated in the engraving, while the Volunteer is of

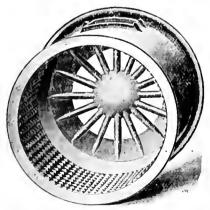


Fig. 2.—General View of Fire Pot.

the portable type. Both of the boilers are made for either steam or hot water. They are made entirely of cast iron, comprising a circular ash pit and fire pot which is east in a single piece, open and close sections, the open sections allowing the products of com-bustion to pass through the section and the close sections forcing them out to the edge and over the section, the of the All Right boiler, the new dust damper arrangement will be seen. This arrangement, which is a patented device, is referred to as a simple but effective way of getting rid of the dust when shaking the grate. The damper is located at the back part of the base and is operated from the front by a rod. In the brick set form this damper opens into the flue around the boiler between the base and bricking, and the dust is carried into the chimney. In the portable boiler a piece of smoke pipe can be run direct from the damper in the base to the chimney or up into the reg-ular amoke pipe. When the dust damper is opened, no matter whether the ash pit door is open or closed, the dust, owing to the draft, is carried into the chimney rather than into the cellar. The inner surface of the fire pot, as shown in Fig. 2, is covered with fine points projecting into the fire, which, it is atated, prevents all possibility of the water chilling the fire and thus secures a very perfect combustion and maintains. perfect combustion and maintains a uniform fire at the edges as well as in the center of the pot. The grate is of the Smyth patent triangular pattern operated with a shaker. The grate bars fit into slots in the back of the base and rest in grooves on a supporting bar across the front, held in place by the ash plt front. By taking off this front, which can be done by removing four screws, the supporting bar falls forward and the entire grate, or any part of it, can be removed and replaced and new bara put in if necessary. feature is also referred to as patented. Fig. 3 is a sectional view of the No. 12 Volunteer hot water boiler, showing waterways and flue spaces; also the hot water regulation tank, which is immeraed in the water continually within the boiler, receiving its heat from the surrounding water. It expands against a rubber diaphragm and closes the draft

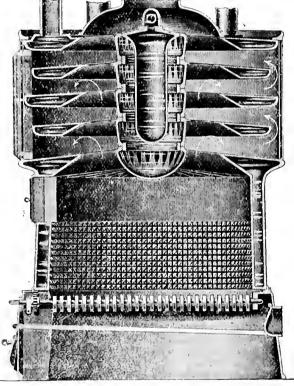
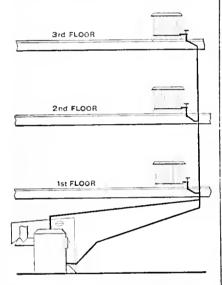


Fig. 3.—Sectional View of Volunteer Boiler.

to the piping before the mason starts with the brick work. This does away with the loss of time and interference where the mason and steam fitter have at any desired temperature. It is pointed out that there are only three or four joints in the entire boller and these are lathe turned screw joints.

### Dispute about Radiator Connections.

From Samuel A. Heins, Rondout, N. Y.—In reply to the question that was asked by "W. W. K." in The Metal asked by Worker of November 17 on connecting radiators, the sketches seem to show a one-pipe system. I do not think very much of such a system, although I have put in a great many which worked sat-isfactorily, and I have also taken out a good many that did not work. Give me the two-pipe system, for you can always rely on that system to work well. I do not think much of the way the pipe is run from the boiler and the way the radiators are connected in the sketches shown. The pipe from the boiler pitches the wrong way and should rise from the top of the boiler and the condensation in the flow main should run back to the boiler. From the sketches it looks as if square elbows were used on the return pipes, which should be avoided. An elbow should never be used unless unavoidable, as the friction to so great. By using 45° ello there is much less friction. By using



Dispute About Radiator Connections.

Y fittings it would be difficult to connect the radiator valves. There would be less hammering in a system like that shown in the first illustration, which would also give the drier steam of the two, but neither of them is perfect. I have been in the steam and hot water business for a good many years and give a sketch of what I would consider a perfect system. Of course it is open to criticism and I always like to get the views of my fellow workmen on a subject of this kind. I would use on my risers, tees, with a nipple and a 45° ell to run up to the radiator. This would not make such a tedious job in connecting the radiator valves. There would be less friction and better results from a job fitted up this way. A two-pipe system always pitches toward the end and bleeding pipes may be put in to relieve the upright pipes from rattling and banging. In my experi-ence I find wherever a Y-joint or 45° elbow can be used it gives better results and less friction in the pipes, and the distribution of steam is better than where tees and square ells are used. I think the job shown in the second figure would fail to work right. I know it would not work as well as that shown in the first, though I never put up a job like that shown in the second, which would require the use of globe or straight valves instead of radiator

valves, and no radiator should be connected with any valve except an angle valve. If "W. W. K." wants to know which will give the driest steam and be freest from water hammer, I would recommend the first, and hope to see the views of my fellow workmen in The Metal Worker on this subject.

#### Heating a Barber Shop.

From W. F. S., Bayñeld, Wis.—I would like to ask another question in reference to heating the barber shop that was given in The Metal Worker of December 1. Would a quicker and better circulation result if the pipe shown in Fig. 2 was highest at the right angle turn just above the heating coil and at a pitch from the air valve to that point where it now has a fall? This would make the air valve lower than the elbow above the coll and would necessitate the air valve being changed to that point.

Answer.—It is quite possible that very little difference would result from changing the pitch of the pipe in the plant discussed. The idea of having a fall from the point where the air valve is located is based on the fact that the water will be hottest when it reaches this point, and from there it will cool and consequently have a tendency to fall away, inducing a better circulation than if the cooling water had to flow up hill. In larger plants, with a longer run of pipe, it is the general opinion that it is best to have a fall from some high point.

#### HEATING NOTES.

J. A. GOODRICH of the American Radintor Company, 92 Centre street, New York, spent last week in Chicago. The business of the company shows an increase this year and keeps their experienced corps of men busily engaged in attending to it in the manner that has won popularity for the house.

Samuel Burns of Thomas Weathered's Sons, 244 Canal street, New York, recently read a paper on the "Improvements in Greenhouse Heating" before the New York Florist Club. As a pipe fitter, manufacturer and engineer, with an experience of a quarter of a century, nothing was lacking in the reader to make the paper interesting, as was shown by the close attention and questions of the audience.

M. KENNEDY of Troy, N. Y., recently completed the installation and satisfactory use of two Humber boilers in a new school building and was startled a day or two after by learning that the building was destroyed by fire and that it was reported that an explosion of the boilers had started the fire. With commendable enterprise he immediately had the debris removed from where the boilers stood and had a photograph taken of them and a part of the piping, which showed all to be in perfectly the piping, good order, as the fire did not destroy that part of the building. The photograph was reproduced in a local paper and all disagreeable reports about the heating apparatus were promptly stopped. His worthy enterprise has given him no little publicity of a pleasing and we trust profitable character.

M. Mahony, Troy, N. Y., distinguishes the festival month of the year with a calendar, decorated with the worthy St. Nicholas carrying playthings

to his worshipers. The card also tells the people that comfort and satisfaction are assured by the use of the Mahony boilers for steam and hot water heating.

The Southern Heating Company were incorporated last week at Louisville, Ky., by Walter E. Mellinger, David Gorman and Thomas D. Bedwell, with a capital of \$10,000, divided into shares of \$100 each. Mr. Mellinger was recently heating engineer for the Baker & Smith Company at Chicago.

M. J. Heatly, Mitchell, S. D., was in New York this week among the hardware trade and looking up steam and hot water heating apparatus.

James A. Harding writes from his home at Vineyard Haven, Mass, that although he has no connection with any house in the steam and hot water heating trade at the present time, he is preparing the plans and specifications for heating a new school building at Cottage City, Mass., for one of his numerous friends in the trade.

W. M. MACKAY, 211 Water street, New York, manager of the steam and hot water department of Hart & Crouse, Utica, N. Y., is sending out card pricelists of the new large size Royal water heaters and Safety sectional steam heaters. Since the season has opened, and the boiler has been tested, it has demonstrated a capacity to carry an increased amount of radiation over that which was estimated originally.

THE MARTIN HEATER COMPANY'S plant, Dunkirk, N. Y., will reopen at an early date with a full force of operatives. It is said the concern have been absorbed by a syndicate of Eastern capitalists who will manufacture specialties.

JOHN A. Scollay, Brooklyn, N. Y., has opened an office at 89 and 91 Centre atreet, New York, for the sale of hot water heating apparatus for greenhouses and residences.

The Lunkenheimer Company of Cincinnati, Ohio, nave recently opened a house at 51 John street, New York, under the management of Franklin Williams. They will carry a full assortment of their specialties for steam, water and gas in valvea, safety valves, injectors, water columns, lubricators, &c. They are presenting a high pressure gate valve, arranged so that new seats for the valves can be inserted, also a globe valve of extra strength in the partition, and designed so that the seat can be reground in a few minutes. E. H. Lunken, president of the company, has recently returned from England, where he eatablished a branch of the house at 35 Great Dover street, London.

THE BOARD OF MANAGERS of the American Society of Heating and Ventilating Engineers held a meeting last Monday in one of the rooms of the building of the American Society of Mechanical Engineers, 12 West Thirty-first street, New York. The object of the meeting was to perfect arrangements for the annual meeting, to be held on January 22, and to consider the subjects to be laid before the society. Those who wish to correspond with the society should address their communications to Post Office Box 1818, New York City.

A. C. EDGAR of the Model Heating Company, Philadelphia, Pa., was one of the visitors to *The Metal Worker* office this week.

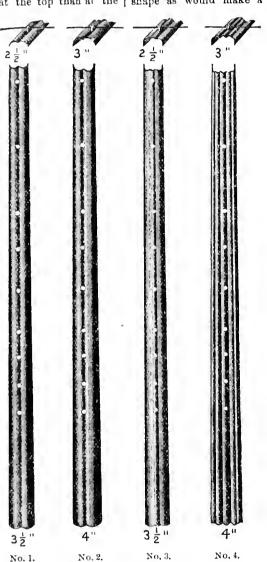
N. A. Boynton, president of the Boynton Furnace Company, has been spending a few days at the Chicago branch, 195-197 Lake street.

# THE RETAIL STORE.

#### Pressed Steel Fence Posts.

The Avery Stamping Company, Cleveland, Ohio, are introducing fence posts pressed from steel, as shown herewith. The posts are made from sheet steel pressed into shape and are then coated with a non-corrosive compound to prevent rust. The posts taper, being 1 inch narrower at the top than at the

at which they are sold is a noticeable feature of the goods. The posts are made in four sizes, Nos. 1, 2, 3 and 4, and are particularly adapted to use for railway, farm, lawn, park and cemetery fences, whether of smooth barbed or of woven wire. The company state that they have been experimenting for a long time to see if they could not distribute steel into auch shape as would make a light, at 1ff,



Pressed Steel Fence Posts.

bottom, as shown by the figures in the cut, their form being such, it is stated, as to give them great rigidity. The posts are designed to be driven into the ground, thus saving digging and filling. The point is made that frost does not raise them as may be the case with other kinds of posts. For fastening wires to the posts staples are inserted through the holes and bent as shown at the top of the cut, which is referred to as a simple mode of fastening and as allowing the wires to expand and contract. It is pointed out that the posts being light, and nested for shipping purposes, a great saving is made in freight, cartage and handling, and that the price

atrong, durable and low priced fence post. The manufacturers explain that the principal reason that ateel posts have not been more universally used heretofore has been that the metal was not properly distributed, thereby requiring considerable more material, which increased the weight and cost unnecessarily, and that these posts offer the same resistance to pressure in the ground as a wooden post of like size. It is further explained that bar iron and pipe and small angle iron have been used in order to make them cheaply, but they have been of such small size that they were easily pushed over and an extra plate and bracing had to be used, which made them expensive.

#### The America Refrigerator.

The Bowen Mfg. Company of Fond du Lac, Wis., manufacturers of the Bowen patent refrigerators, have recently brought out the America, which is herewith illustrated. This refrigerator has a removable ice receptacle, thus constructed for the purpose of securing one of the essential features of a perfect refrigerator—namely, cleanliness. All parts are easily removed for cleaning, the interior being constructed entirely of metal with no wood exposed to become sour of filthy. The drainage is a special feature also. As seen by means of the broken side of the



The America Refrigerator.

ice compartment, the tank walls are bent upward and inward at the lower ends, forming a continuous trough. This trough, having narrow channels, conveys the waste water out of the refrigerator with great rapidity. The ice rack, which is shown leaning against the refrigerator, is also constructed to attain this object. Dry air and saving of ice are the result. This method of construction also strengthens and atiffens the ice chamber. There is a large opening under the rack for the cold air to enter the provision chamber, and there are spaces on all sides of the tank for the warm air to rise and enter the ice chamber. The metal ice compartment further forms a large condensing surface, which assists in drying the air. A portable drip pan suspended from the bottom of the tank makes it impossible for the moisture of condensation to drip into the provision chamber. The bottom and drip pan slope toward the waste pipe, which is located at the side

of the refrigerator in a convenient place for observation and for the removal of the catch basin. On the right hand side of the ice chamber is seen the porcelain lined water cooler, which is hooked to a band of iron counecting the front and back walls and is easily removed for cleaning. The refrigerators are made of selected ash, finished in antique, trimmed with solid bronze hardware. Mineral wool is used for filling. The company also manufacture the Eclipse and Bowen refrigerators.

#### Walk and Street Scraper.

The Iowa Farming Tool Company, Fort Madison, Iowa, are introducing a seasonable tool, as shown in the accompanying cut, for scraping walks and streets. The scraper has a hardwood blade, 6 x 18 inches in size, secured to

the couplings are connected the cam is Inserted in the groove, and with one motion of the lever the two parts are brought together perfectly tight, the curved top of the male coupling being

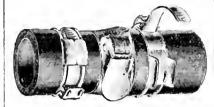


Fig. 3.—Coupling Applied to New Hose.

pressed against a rubber washer on the inside of the female coupling, Fig. 2. The lever then lies that on the side of the hose, as shown. Disconnecting is accomplished just as speedily and eas-

ple and well calculated to do away with much that is vexatious in handling garden hose. The company manufact-

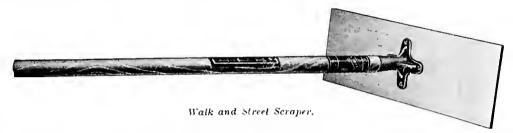


Fig. 7.—The A. & W. Hose Band.

ure five sizes—namely, for  $\frac{1}{2}$ ,  $\frac{1}{2}$ ,  $\frac{1}{2}$  and  $\frac{1}{2}$  inch hose,

#### MEMORANDA.

ETTE & HENOUR MFG. COMPANY, St. Louis, Mo., issue an illustrated catalogue which shows the Cactus, Japanese and Park lawn sprinklers, and the Imperial, National and Pacific, these three having revolving arms. The hose specialties illustrated include brass polished hose pipe, National and Gem spray nezzles, hose couplings and



a malleable iron socket and is provided with a strong 4½-foot ash handle. The manufacturers state that for removing mud, slush, snow, &c., it is an excellent and cheap tool.

### The Adams & Westlake Hose Coupler.

The Adams & Westlake Company, Chicago, have just brought out the Adams & Westlake Lightning hose coupler, which is herewith illustrated. The coupler possesses obvious and important advantages over the old screw coupling. It has been devised to meet



Fig. 1.—The Adams & Westlake Lightning Hose Coupling.

the demand for something better, for a coupling that can be used without bruising the fingers and without twisting the hose, that would be water tight and that could be instantaneously fastened. The inventor has cleverly devised special fittings to cover every re-

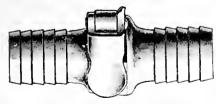


Fig. 2.—Couplings Connected.

quirement in connecting garden hose. As will be seen by the cuts there are no screws to get out of order. The end of the male coupling is fitted with a smoothly finished curved top, below which is a deep groove. The female coupling has a short lever terminating in a cam, as shown in Fig. 1. When

ily. Fittings are provided, as shown in the illustrations, for new hose, Fig. 3; for old hose without removing the



Fig. 4.—Coupling for Old Hose.

old couplings, Fig. 4, and for use on a faucet, Figs. 5 and 6, where it can be left permanently. The A. & W. hose band, shown in Fig. 7, is also an ingenious device, as it can be applied



Fig. 5 .- Coupling for Bibb Faucet.

without tools of any kind. It is formed with a body of wire, a brass strip at one end and a lever at the other. Teeth on the end of the lever engage in openings



Fig. 6.—Coupling Applied to Bibb Faucet.

on the end of the strip, and the band is then drawn tight by pressing the lever over. Ears on the strip are pressed down to lock the lever in place. It will be seen that with these bose bands the work of attaching couplings to hose to a very simple matter. In fact, the whole arrangement is wonderfully sim.

clamps, seamless hose valves, also Chicago and California patterns of hose valves.

THE ILLUSTRATED CATALOGUE and price list for 1895 of the Shirk refrigerstors, manufactured by the Shirk Re-frigerator Company, 254 East Madison atreet, Chicago, Ill., is a neat pamphlet of 50 pages, bound in enameled paper. In an introductory note addressed to the trade they mention that their business last year, in spite of the hard times, was better than during the previous year. They also allude to the excellent grade of their goods, and then give 15 reasons for buying the Shirk refriger. ators. Following this is a notice of some special features of the refrigerators, and then come the articles themselves. Refrigerators of all sorts are shown in general and sectional views, descriptive particulars being given where necessary, and tables of sizes and prices presented. Grocers' chests, sideboard refrigerators, nursery refrigerators and special designs for large work are shown in great variety. Two points upon which emphasis is put are cork filling and dry air.

The Rochester Lamp Company, 42 Park place and 37 Barclay street, New York, have just issued an illustrated catalogue and price-list of their new Rochester Lamp, including artistic designs in banquet, table, piano, library and hall Lamps, onyx and brass Tables, Parlor Heaters and Oil Stoves. This is known as Wholesale Catalogue 49, and is intended for the home trade, their export catalogue having been previously issued. This, it is announced, will shortly be followed by a supplement. In addition to the above goods are shown silk and linen Shades, Shade Frames and a variety of miscellaneous Lamp goods and trimmings in brass, bronze and tin. A large variety of new Rochester Lamps are illustrated and described, and other patterns are continually being added. Aside from the admirable lighting features of the new Lamp the die work in the metal goods is exceptionally fine, some 40 odd watch die makers having long been employed in this department at the extensive plant in Bridgeport, Conn., where the new Rochester is now made.

#### L. & G. Improved Milk Can Stock.

The accompanying illustrations show the improved L. & G. patented milk can stock, for shipping purposes, just placed on the market by the Lalance & Gros-

coated and re-coated with pure block tin. The interior is consequently per-fectly smooth, instead of having the three soldered seams found in the older atyles-a great recommendation, it is remarked, in point of easy cleansing. Further, to protect the cans in transit,

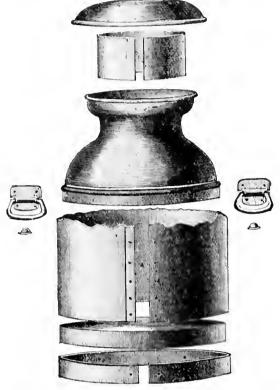


Fig. 1.-L. & G. Improved Milk Can Stock.

jean Mfg. Company, 19 Cliff street, New York. The style here shown rep-resents the pattern of can in use in New York State, but the articles are also made in all the leading sizes and patterns adopted in other parts of the country,



Fig. 2 .- Milk Can Made from L. & G. Improved Stock.

some 20 different styles being manufactured. The particular feature of this stock, which has been secured by a recent patent, is the fact that the bowl, neck and breast, and also the neck and breast only, are made in one seamless piece of heavy steel, thickly

a strong iron hoop is firmly tinned on the breast rims. It is pointed out that the cylinder, or body sheet, has a close bearing of 11 inches, the full inside circumference of the can breast, and this apace, between the cylinder and breast rim, is floated with solder, obviating the weakness and subsequent leakage which has so often been found to be the fault of milk cans made with other than the straight form of breast rims. There are, as wil be seen in Fig. 1, three thicknesses of metal solidly united as one by two additional layers of pure block tin and solder, with the stiff iron hoop on the outside, at the point where strength and durability are most essential.

#### Domestic Gas Light Heater and Illuminator.

Hamsley Metal Roofing Company, 18 Cliff street, New York, are marketing a modification of a heater formerly brought out by them, as shown in the accompanying cuts. It is known as the Domestic Gas Light Heater and is specially adapted for heating bath and bed rooms, offices, &c., affording both light and heat from one flame. dome has an inside shell to retain any gas which may have cecaped com-bustion at the burner and are consumed by the intense heat without fouling the atmosphere of the room. The sides of the lower half of the dome are fitted with white mica for illuminating purposes. This heater is 7 inches in diameter and 10 inches long over all. When desired a hood or deflector is sent which covers the dome, its object being to shower the heat downward. Water and other liquids can be quickly heated or light cooking accomplished over these heaters, a number of utensils fitting the too exactly being furnished for this purpose. Fig. 2 shows a

double burner with air mixer, which, it is explained, gives a more intense heat, increasing the volume twofold for in-



Fig. 1.-Domestic Heater with Single Burner.

creased area or apace. Fig. 3 represents the heater with double burner, the whole covered with an embossed



Fig. 2.—Heater with Double Burner.

Russia iron inclosure 10 x 10 inches for radiating a greater supply of heat. One of the economies of the heater over a atove consists in the fact that it can be



Fig. 3.-Heater with Double Burner and Inclosure.

used or discontinued instantly, and the intensity of heat quickly regulated by the key.

#### Aluminum Coffee Pot.

Sidney Shepard & Co., 23 Randolph atreet, Chicago, have brought out an addition to their line of aluminum ware in the form of a coffee pot. It is a beautiful piece of work, the entire body being apun from one piece of metal so that it is without a seam, except at the spout. The design is artistic, in no way resembling coffee pots made of ordinary tin plate. The samples of aluminum ware now shown in the salesroom of this firm make an exceedingly attractive display.

## ROOFING AND CORNICE.

## The Penn Iron Roofing & Corrugating Company,

Philadelphia, have just issued a supplement to their general catalogue of steel coverings for coilings and side walls. A feature of the book is a series of colored photographic reproductions of ceilings and side walls in which the effect of the decorator's art is admirably shown. The colors in these illustrations are arranged and blended with much taste, and a good idea of the opportunities for lavish or even plain decoration afforded by the use of the company's products is obtained. The supplement consists of 44 pages 9½ x 13½ inches. Medium deep molding plates are first shown in a combination of the plates shown in Department No. 7 in the original catalogue, the coloring in the combination bringing out the full beauty of the design. Columbian extra deep plates in a ceiling combination artistically decorated follow. Next is a ceiling combination of deep molding plates, followed by a combination of bead mold plates adapted to a side wall finish for a dining room, café or restaurant, and a ceiling combination of the same class of plates for a similar purpose. A side wall of enriched steel work suitable for parlors or bedrooms, and two side wall finishings with coves are then shown. Next is seen a ceiling of ornate design with corner finish of enriched plates, and a ceiling combination of deep molding plates with enriched cove and styling. Basket em-bossed body plates in combination with enriched coves follow, with additions to the tenth department of the original catalogue in the way of special shallow panel ceiling plates and combinations of molding plates. Two plain ceilings with stenciled decoration then appear, followed by plain illustrations of new atyles of zinc centers and a large illustration of a combination in body and cove plates. Two decorated side walls in delicate tints with silver bronze trimmings come next, and are succeeded by a page devoted to stencil designs.

The remainder of the book is devoted to the illustration of many new designs covering friezes, molding strips, body plates, rosettes, panels, centers and plate combinations. Many of the engravings are of large size and include interior views of cafés and offices where the materials have been used.

The company have also issued a 12-page catalogue in supplement form descriptive of their line of rock faced metal coverings. The many styles of plates shown demonstrate how closely the imitation of a stone building may be effected. Some brick facings are also shown, and there are several illustrations of buildings on which the plates have been used. The concluding pages are devoted to roofing tiles, for the manufacture of which the company state they have exceptional facilities. They also claim that they are especially equipped for export trade, having the latest patterns of machines for producing the several styles of tiles in use in foreign countries.

FLASHINGS.

WALTER EGGLESTON AND WARREN PEALER will open a tin shop in Bronson, Mich., January 1, and will be prepared to do all kinds of tin work, roofing, spouting, &c. The firm name will be Eggleston & Pealer.

THE BAY STATE ROOFING COMPANY are putting a composition roof on the Smith Block, at Torrington, Conn.

KNORR & BLOCKS, 165 Wells street, Chicago, are to furnish the cornices, skylights and tinning work for the flat building of P. W. Loftus, Austin and Ashland avenues.

#### Progress in Gas Making.

As the result probably of sharp competition in one form and another, says the Pittsburgh Dispatch, gas making and consumption have undergone many improvements in recent years; indeed, at least one gas expert has claimed that the gas art has made greater advances than the electric lighting art in the same period. Of course the great objection remains that there is a naked flame using up a certain proportion of the necessary constituents of a healthy atmosphere, but the vast majority of people are still very indifferent to this, provided their illumination is cheap. A new process is said to be creating a sensation in lighting circles, and its origin is very curious. In prosecuting work for electrolytic reduction of refractory oxides to yield aluminum, T. L. Willson found that large quantities of calcium carbide were producible, from which acetylene is readily obtained. Now acetylene has remarkable illuminating power, but no method has hitherto been known for its cheap production. It is stated that a burner taking 1 to 1½ cubic feet of acetylene per hour affords a beautiful, clear white light, fully equal to 50 candle power, while the cost puts it on more than a parity with that of existing methods. It will be seen that there is here the promise of much cheaper lighting of a better kind. The only objection to the new gas of any importance noted thus far has been a tendency to smoke a little when turned down low.

After 18 months of steady boring for artesian water, the city authorities of Princeton, Iowa, have at last struck a sufficient supply, of high quality, at a depth of 2275 feet.

A branch of the British National Health Society, which seeks to diffuse sanitary knowledge among the people, has been formed in India. Sanitation, as such, among the natives of that ceuntry is of an exceedingly elementary kind, and is generally conspicuous by its absence in the homes of the poor. The society proposes employing women workers to go among the native women and teach them how to render their houses more sanitary, employing for this purpose public apeeches, simple literature and personal lessons. That

this is a sufficiently herculean undertaking, those who have any knowledge of the various manners, customs and religious prejudices of the people of India will readily acknowledge.

#### Test of Fire Proof Construction.

A demonstration which was given on October 26, at the St. Pancras Iron Works, London, of a system of fire proof construction patented by T. L. Banks is thus described in the Plumber and Decorator: Mr. Banks has proceeded on the principle that if a building is to withstand the effects of a big fire within its walls it must not only be built of unioflammable materials, but must also be heat proof. A brick building had been erected, its lower story being filled with inflammable material, being filled with inflammable material, which was set fire to and allowed to burn for half an hour. The strength of the flames was very great. The fire was finally drowned out and the party then examined its effects. The room had been ceilinged on the new system, and it was found that beyond slightly cracking the plaster no harm had been done. Nor had the heat penetrated the room above, where a block of ice remained unmelted. The fire proofing consists of helical metal lathing covered with plaster, and so fixed that a small chamber, through which passes a current of air, is left between the floor above and the ceiling below. It is impossible for the heat to reach the joist ends, so that no twisting of these from the heat of the flamca results.

Dr. Siemens, the Berlin electrician, dwells in a house which is known throughout Germany as "the Wonder of Wansee." It is fitted from roof to ceiling with electricity. Report has it that the dining room, kltchen, and wine cellar are all connected by means of a miniature electric railway. In order to convey things from one room to another, the article required has only to be placed on a little car, a button pressed, and the car is almost instantly where it ought to be.

A. R. Whitehill, professor of chemistry and physics at the West Virginia University, after exhaustive experiments, is said to have succeeded in liquefying and solidifying natural gas. The result of his experiment is described as presenting the appearance of a lump of snow, which evaporates rapidly and disintegrates when brought in contact with the air, giving off a smoke like phosphorus.

The latest hygienic notion in Paris is the use of "perous" glass for windows. This is declared to possess all the advantages of the ordinary window filling, and while light is as freely admitted as through the medium of common glass, glass of the "perous" description further admits air as well. The minute holes with which it is pierced are, however, too fine to permit of any draft, while they are said to furnish a healthful, continuous ventilation.

## TIN PLATES.

The Tin Plate Wages Dispute.

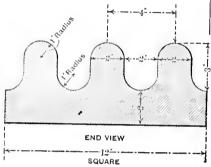
On Monday and Tuesday of this week conferences were held in Pitts-burgh between the Association of Tinned Plate Manufacturers and committees of the Amalgamated Association for the purpose of arranging a wage scale which would be satisfactory to both sides and terminate the strike among the tin plate mills, some of which have not been in operation for nearly three months. Exhaustive arguments were made by both sides in support of their respective positions, the manufacturers claiming that it would be utterly impossible to operate their plants at a profit and pay the old scale of wages. On the other hand, the employees argued that on account of the great reduction in the price of steel and the introduction of labor saving devices, the heavy reduction in wages asked by the manufacturers was not justified and could not be accepted. Near the close of the sessions the manufacturers agreed to withdraw the demand for a reduction of 20 per cent. in heaters' wages, but insisted that the other reductions must be made. To this the committee, representing the Amalgamated Association would not agree, and on Tuesday evening the conference adjourned and nothing was accomplished.

It is now certain that those tin plate manufacturers who have not already started with non-union men will shortly do so. The Ellwood Tin Plate Company, Ellwood City, Pa., immediately inserted advertisements in the Pittaburgh papers for non-union competent workmen, and will start up as soon as men can be secured. The United States Iron & Tin Plate Mfg. Company, Wallace, Banfield & Company, Limited, and other concerns who started up with non-union men some time ago were not represented at the conference, for the reason that they are no longer members of the Manufacturers' Association. The failure to bring about a settlement of the trouble between the tin plate manufacturers and their workmen will, it is believed, cause a disruption of the Manufacturera' Association, a number of firms having already severed their connection with it.

#### The Beard Furnace Tile.

Ambrose Beard, Jr., Cambridge, Ohio, has invented a fire clay furnace tile for bottoms of tin mill and sheetheating furnaces, which, it is claimed, is superior to others now in use. The tile, which is illustrated below, is made to cover I square foot of surface and, when properly laid, the furnace bottom becomes very much like the shape of a sheet of corrugated iron. The corrugations are, however, made deep, so as to allow of the radiation of heat and expansion of gases underneath the packs of sheets which are placed on the top of the corrugation. In old methods a bottom made of broken flue cinder is used, or, more commonly, coke is placed on the furnace bottom, to make the heat of packs more uniform. By use of this tile the expense of burning coke is

avoided and cleaner, better results are obtained. The tiles are used for pair furnaces or heating furnaces. In furnaces for heating bars they are placed crosswise of the furnace, and for heating sheet packs they are placed exgthwise, making a clean bottom, which retains a large amount of heat and secures excellent results. The



The Beard Furnace Tile.

American Fire Brick & Clay Company, Mineral Point, Ohio, are the manufacturers.

#### SCRAP.

THE TIN PLATE PLANT of the Old Dominion Nail & Iron Works, Richmond, Va., was slightly damaged by fire last week. The accident only delayed operations for a few days.

Anderson, Ind., advices report that the buildings of the new National Tin Plate Works are progressing rapidly. The roof of the tin house was to have been put on by the end of this week.

British Board of Trade returns for November show the total exports of tin and terne plates from British ports during that month to have been 32,000 tons, against 26,000 tons in November, 1893. Of this amount, 22,000 tons were shipped to the United States, as compared with 24,800 tons in the previous month, and 15,500 tons in November of last year.

THE WORCESTER AND UPPER FOREST TIN PLATE WORKS, at Morriston, South Wales, were closed down last week, owing to the inability of the proprietora to obtain orders except at prices which would entail a substantial loss. Two thousand workpeople were thus forced into idleness.

THE LEECHBURG FOUNDRY & MACHINE COMPANY, Pittsburgh, have secured a contract for four hot and four cold mills, one Mesta pickling machine, four sets of doubling shears, two sets of trimming shears and one roll lathe for the new tin plate plant of the La Belle Iron & Steel Works, Wheeling, W. Va.

It is stated, in a recent press diapatch from Newark, Ohio, that a company of Pittsburgh capitalists have definitely decided to build a 4-mill tin plate plant at that place. Citizens of the town have subscribed for a number

of sharea in the new enterprise, and other inducements were offered, which, after more or less lengthy negotiations, determined the promoters to locate at Newark. Under the terms of contract the new works are to be built within the next ten months. The proposed plant will, it is said, employ about 300 operatives.

THE ANNUAL REPORT of F. A. Swel tenham on tin mining in the State of Perak in the Malay Peninsula, shows that the tin and tin ore exported from the State during the year amounted to 316,201 pikula, or 18,821 tons, against 278,254 pikuls in 1892. Of this quantity the Kinta district produced 230,725 pikula, Larut coming next with 69,892 pikula. The highest export for any one month was 32,301 pikula in July, and the lowest 20,253 in March.

ALL THE CONTRACTS for the equipment and buildings for the new tin plate plant to be erected by the Hyde Park Iron & Steel Company, Hyde Park, Pa., on the line of the West Penn Railroad, about 35 miles from Pittsburgh, have been awarded, and the erection of the plant will be pushed as rapidly as possible. The contract for the buildings, all of which will be of iron, has been awarded to the Shiffler Bridge Company of Pittsburgh, and they are now under way. The main rolling mill building will be 113 feet wide and 175 feet long. The contract for the engine was given to the Rankin-Fritache Engine Company of St. Louis, and it will be 13 x 60 inches in size, geared two to one, and will drive both the hot and cold mills. The contract for the rolling mill machinery has been placed with the Leechburg Foundry & Machine Company of Pittsburgh, and consists of two 24 x 44 inch finishing mills and one 24 x 44 inch roughing mill. One train will consist of a 24 x 54 inch finishing mill and the other of a 24 x 52 inch bal-anced roughing mill. There will also be a 24 x 78 inch two-high bar mill, shears and roll lathe. The boilers will have 800 horse-power capacity, and will be of the return tubular type, the contract having been placed with the Eric City Iron Works, Eric, Pa. The new plant is expected to be ready for operation about April 1, 1895, and the product will at first consist of black plates only, although a tinning depart. plates only, although a tinning department is expected to be added after the black plate mills have been started up.

THE PITTEBUROU TIN PLATE WORKS, INCORPORATED, New Kensington, Pa., have recently completed the erection of mills for rolling black plate, and the plant of this concern, which has been tidle for some time, has been put in operation with non-union men. At this time one black plate mill is in operation, but another was to be started during this week. As soon as a sufficient stock of black plates is secured the tinning department of the plant will be started up.

DURING LAST WEEK the Lecchburg Foundry & Machine Company of Pittsburgh shipped a Meata patent pickling machine to Goldsmith & Lowenberg, at New Kensington, Pa.; one machine to Monongahela Tin Plate Company, Pittaburgh, Pa., and a third to the New Castle Steel & Tin Plate Company, New Castle, Pa. The new tin plate plant now under erection by Goldsmith & Lowenberg, at New Kensington, Pa., is well under way, the iron buildings being nearly completed and foundations are being laid for the machinery.

ROBERT CROOKS & Co., New York City, importers of tin plates and metals, give notice of the removal of their offices, on December 15, from the location which they have long occupled at 64 John street, to more commodious quarters at 138 Front street, corner of Pine street, where they have secured a handsome suite of offices. Messrs. Crooks & Co. are among the most prominent houses in the tin plate trade in the East.

LATEST ENGLISH ADVICES indicate that a number of the South Wales tin plate works are shut down pending a readjustment of the wage scale. Those named as now idle include the Old Lodge and Western, at Llanelly; [the Worcester and Upper Forest, at Swansea; the Ashburnham, at Burry Port; the Morlais, at Llangennech, and the Hendy Works, at Pontardulais. These works aggregate 50 tin plate mills.

THE Welsh Tin Platers' Union is, it is stated, to be thoroughly reorganized and strengthened with a view to again restoring a uniform rate of wages throughout the trade.

THE TOTTEN & HOGG IRON & STEEL FOUNDRY COMPANY of Pittsburgh, manufacturers of rolling mill and tin plate machinery and engines, have secured a contract from the Baltimore Iron, Steel & Tin Plate Company of Baltimore, Md., for the entire machinery for their new tin plate plant to be erected at Locust Point, Md.

## The South Wales Tin Plate Situation.

On Tuesday, December 3, an agreement was arrived at between the proprietors of the Morewood Tin Plate Works, Llanelly, South Wales, and their workmen, after prolonged discussion and negotietions, whereby the men agreed to accept a reduction of 10 per cent. in their wages. This, it is believed, will lead to a termination of the crisis at Llanelly; as it is understood that other manufacturers in the Llanelly district will follow the example of the Morewoods, although they had previously refused to curtail their demands to this extent.

Outside the Llanelly district, the wage question is still a burning and unsettled one. The tin plate manufacturers of South Wales, exclusive of the Llanelly makera, met on the same day at Swansea, and decided to endeavor to obtain from their men a concession beyond that accepted by the Morewoods.

According to accounts of the Llan elly meeting published in the English morning papers of December 5, J. H. Rogers, the head of the Morewood interests, in addressing the deputation of workmen made some statements which seem open to criticism by those who have a knowledge of the condition of the tin plate trade and industry in this country. He is credited with saying that the idea of the present depressed atate of the tin plate trade being due to American competition was entirely without foundation, and he informed the men in corroboration that "when he left America a few weeks ago, as far as he knew, the only tin plate works that

were running were Messts. Morewood's. at Gas City, the American works, at Elwood, and a small concern near them. The output of these works," he said, "would practically make no difference in the demand for plates from America." He told the men, however, that "glass and crockery were now very serious competitors with tin plates for the packing of fruits, vegetables and corn, and that many of the storckeepers in America were using eardboard and thin wooden boxes in which to pack goods instead of using tin boxes as formerly. This, coupled with the general bad trade throughout the world and the competition of Continental nations, was the real cause of the present deplorable condition of the tin plate trade.

Neither Mr. Rogers nor his hearers had, of course, seen the last published report of American tin plate production, which showed that the works in the United States had put out in the first half of this year no less than 85,000,000 pounds of tin and terne plates. Had they done so the alleged statement of the head of the Morewood interests, which amounts to a declaration that American competition was not a factor to be reckoned with, would probably have been modified. The tin plate news published from week to week in this paper should convince our readers both nt home and abroad that the American industry, although checked in some quarters by the present wage controversy, has not yet been relegated to obscurity. It is the general opinion among well informed authorities in the trade that American competition is largely accountable for the present drop in the prices of tin plates on the other aide of the water.

THE LA BELLE IRON WORKS, Wheeling, W. Va., manufacturers of muck bars and steel cut nails, have, as previously announced, decided to engage in the manufacture of tin and terne plate. A force of men have been put to work tearing down someold puddling furnaces to make room for the new machinery. The contract for the equipment of the plant has been given to the Leechburg Foundry & Machine Company of Pittsburgh, and consists of four hot mills 24 x 32 inches, four 22 x 34 inch cold roll mills, four 36 inch doubling shears, with engines attached, and two 36-inch squaring shears. The new plant is expected to be ready for operation on April 1, 1895, and will have a capacity of about 500 boxes per day.

#### New Publications.

FURNACE WORK MANUAL. An Exposition of Furnace Work in all its Branches. Compiled from the files of *The American Artisan*. By Sidney P. Johnston. Published by *The American Artisan*, Chicago.

The aubject treated of in this work is a very important one, and the information which has been carefully selected and worked up for the benefit of the furnaceman will undoubtedly prove of much interest and value. The compiler mentions that the present volume may not commend Itself to those looking for any new theories on combustion and the deflection of heat, as it deals with the practical problems arising from furnace work and with them alone. In an introductory section reference is made to the advantages of the hot air furnace and its extensive application; then the book proper begins with hints

on reading plans. This is followed with rules and tables for measuring pipes, and attention is given to tools for bending pipes and machines for the same purpose. Tables of plpes are presented, and later on the subjects of register boxes, furnace hoods and collars, dampers, furnace easings, furnace pipe connection, chimneys and cold air supply are taken up. The book is profusely illustrated.

### Warehouse Facilities in Large Cities.

The necessity for retrenchment of expenses during the recent business depression caused a number of Eastern manufacturers to close up their warehouses in Western cities. not intend to withdraw from that field. but resolved to try the experiment of selling through agencies and making shipments direct from factories to the buyers. It has been found that this is in many lines such an unsatisfactory method of transacting business that a tendency is now being manifested to again stock warehouses in the great Western distributing cities. As usual when drastic economies are put in effect, what seemed to be a sound policy was instituted at the wrong time. very depression in trade which made such economy desirable caused buyers to restrict their purchases to much they have been obliged to order more frequently, and when they ordered it was almost invariably because the merchandise was needed at once. Long delays were inevitable if shipments were awaited from Eastern factories, hence stocks at hand were almost invariably drawn upon, and those who had warehouses were duly favored. For some time no warehouse has meant practically no trade.

Another peculiarity of this phase of business has also presented itself. Not-withstanding the cheapness of railroad transportation over teaming as a general proposition, teaming takes the lead in handling the suburban business of a large city. In Chicago, for instance, with its innumerable suburbs scattered along its 30 railroad lines for 12 or 15 miles from the heart of the city, coal and lumber are about the only classes of freight delivered by rail from city stocks to suburban buyers. Almost everything else is transported by teams. City merchants run their own delivery wagons to the suburbs or patronize local express companies making daily or tri-weekly collections and deliveries. The complexities of the railroad service, which are necessary for the transaction of their great business, are too cumbersome for rapid suburban freight service. To use a railroad line also involves hauling to a distant freight depot in the city, and hauling from the rural station to the buyer's place, necessitating probably three sets of charges. Hence time and money are saved in the use of the an-tiquated freight wagon as compared with the modern railroad, because the former collects the parcels at the sell-er's store or warehouse and delivers er's store or warehouse and delivers them perhaps the same day on the premises of the buyer. The suburban patronage thus falls very naturally into the hands of the manager of a house carrying stocks of goods, the delivery by rail from a disadvantage car being and the great disadvantage of being put to great disadvantage, especially when freight must be transferred from one railroad to another to reach a suburb on the latter line. These inconveniences and disadvantages are only realized through experience, and the lesson has thus been taught that stocks of many classes of goods must be carried in local warehouses to capture local trade.

## PLUMBING and GAS FITTING.

### Sanitation and Smoke Prevention in Chlcago.

In the recently issued annual report of the Chleago Department of Health for 1893, Andrew Young, Chief Tene-ment. Factory and Smoke Inspector, presents an interesting and instructive account of the work of his department. We quote from Mr. Young's report as follows: "The wholesome spread of sanltary knowledge through boards of health and the press brings to communities the cold and naked truth that they are as communities reaponsible for much of the sickness and death in and about them. The evils arising from neglect of proper sanitary measures are as old as the history of cities. As the population multiplies the effect of such neglect is found in high death rates or marked by epidemics. Each case of sickness in a community is a menace to those in health. That the imperfec-tions of your neighbor's premises should remain a menace to the health of you and your family is no longer conceded, for legislators have awakened to the fact that health means wealth to a city, and is as beneficial for the city as for the individual, it being important for all that each be made to live cleanly. The question of plumbing and draining is one in which the whole public is concerned, and which should be decided and carried out by public authority and the work held under strict super-vision of competent inspectors. The rules and regulations governing plumbing and drainage of buildings, put in force in 1889, have proven beneficial to the city as well as to the citizen building a home, as every new building must be reported by the plumber for inspection and passed upon by this depart-The value of the work carried on in this line can readily be seen. The records of the department prove that of the buildings where plumbing and drainage were done under the rules adopted in 1889, not one case of sewer air or gas has been established in con nection with such building, nor one case where the system has proven 

important part in the cause of disease lies at the foundation of very much nes at the foundation of very much of the sanitary administration of cities and towns throughout all civilized countries. The popular impression, however, and undoubtedly the belief among a very large part of the medical profession, as well as among many of the officials who have charge of the sanitary administration, is that filth in the ordinary sense of the word is in itself the active cause of disease, and that little else is essential to the production of certain infectious diseases than to deposit a certain amount of filth, or to allow such filth to accumulate within the premises occupied by a given population in order to generate a pestilence. For the purpose of clear and lucid evidence on this important aubject I had a bright young physician of the department, whose medical education had been supplemented with a knowledge of plumbing and drainage and the requirements of

a sanitary dwelling, take from the records the daily reports of diphtheria, scarlet and typhoid fever, and make careful inspection of the premises and surroundings."

The results of this investigation showed with startling emphasis the relationship that exists between unsanitary conditions and sickness.

The following table is a record of the work of the department for the year.

New bnildings examined	5.847
Houses examined on complaint	17,177
Work places examined	17.649
Number employed	306,432
Notices served	13,708
Abatements	10,788
Defective plumbing	2,511
Defective drainage	1,104
Offensive catch basins	1,085
New sewers constructed	857
Traps applied	1,029
Plumbing work ventilated	578
Leaky roofs repaired	154
Privies cleaned	4,350
Privy vaults abolished	302
New water closets constructed	220
Yards and premises cleaned	1,754
	978
Miscellaneous	7.050
Plans examined, approved and filed	1,000

Particular interest attaches to that section of the report dealing with smoke abatement, to which work Mr. Young has devoted so much attention. The

report is in part as follows:

"The work of the Department in the enforcement of the amoke ordinance during the past year has been productive of the best results. In view of the fact that many lines of business would be stimulated by reason of the World's Columbian Exposition, and that many plants would be taxed to their utmest capacity during the continuance of the fair, after careful consideration of the subject a policy of correction was decided upon and proved to be the best

under the circumstances.

"Violators of the ordinance were promptly notified by letter, close watch being maintained for violation at all times, with the result of keeping the city comparatively free from smoke. The enforcement of the ordinance for the past few years has brought about a change of feeling on the part of those operating and owning steam plants. Contracts for the erection of new plants are now so drawn that in the operation of the plants the city ordinances shall be observed before their acceptance by architect or owner.

"Three thousand six hundred and forty seven violations of the smoke ordinance have been abated, some by devices to aid combustion, some by the use of hard coal, and quite a number by the use of natural gas. Two thousand seven hundred and four railroad engines entering the city have smoke consuming devices. The total cost to the city to bring about this large number of abate-

menta was less than \$4000

"In considering the subject of smoke abatement it is but just to take into consideration the immense amount of coal consumed in this city. In the year 1893, up to November 20, the total of soft coal used amounted to 4,247,174 tons. From Pennsylvania, 394,444 tons; from Ohlo. 659,901 tons; from W. Virginla and Kentucky, 164,271 tons; from Illinoia, 1,822,380 tons, and from In-

diana, 1,586,171 tons, thus showing the two last named States to have furnished 3,408,551 tons of the total for 1892."

#### How Swiped Joint Becomes a Shriner—His Miraculous Escape.

Beguiled by supposed friends, our old correspondent has been induced to join The Ancient Arabic Order. In a letter, which we copy in part below, he tells how the members of this noble order got even with the plumber. He writes:

After being admitted to the Temple and honored with the degree in full (I think I got all that was coming to me) I was, with numerous other novices, invited to the banqueting room, where about 200 Nobles were feasted with everything to make the heart glad, test the digestive organs and promote nightmare. Supper ended, felicitous speech and jolly song shortened the hour and drove dull care away. Good fellowship prevailed and Peace hung her banner on the wall. But what had begun so pleasantly came dangerously near ending in tragedy.

Some Son of a Camel Driver, without the fear of Allah in his heart, secretly suggested to the toast master to call on Swiped Joint for a speech. As no such number was down on the programme the request amazed me. with fear I slowly unwound myself and still more slowly raised my body to a standing posture. Gazing around the room, I beheld ten score faces smiling at me. The joy of a gratified victor seemed to spread over all. No kindly eye greeted mine, but rather a look of derision lit every face. When at length I regained my shattered mind and insisted that a horrible mistake had been made, a hundred voices exclaimed "No!" I begged that I might be permitted to select a substitute, but to no avail. Nor would they hearken to the fairy tales I told them my nearest Noble had related to me while we partook of salt and camel's milk together—all most beautiful legends of Arabia. "No! We want no substitute. A speech ! A speech!" they eried.

Then I described the dreadful doom that awaited the author of my misery. How the Nemesia of Fate would follow his footsteps across the burning sands of the desert, lurk about his tent when the shades of night had fallen and my cimeter should surely cleave his skull, divide his smile and split his chin and chine. But in vain was this dreadful threat. Not a smile did cease nor fear in any form rest on a single visage.

Then, in a moment of forgetfulness, I told them that I was not an Arablan story teller but only a plumber, one who did not delight in speech, but in making bills—bills with extra charges attached. Then pandemonium broke loose, and I realized that their day of vengeance was come, and mine to suffer for all the sins of the whole plumbing craft had fallen. They put the Kibosh on me, and forced me to confess how one so disreputable had gained entrance

to the Temple. In explanation I stated that instead of writing "plumber" in my application I wrote "contractor." With fearful yells, that would frighten a Bedouin shiek, a hundred strong arms and hands stretched forth to grapple me. Realizing the peril, and alert to save myself from a terrible fate, a happy thought occurred. I told them would they but grant me peaceful exit I would instruct them how ever hereafter to avoid paying plumbers' extra charges. Down went those threatening hands, smiles of joy and gladness drove away vengeful looks, and with one accord they cried "Agreed! Agreed! Tell us the secret and we will spare your miserable life!"

So hope once more filled my heart and swelled my breast. Pictures of my peaceful home came and hung them-selves on the walls. My aged wife smoothed the few locks that are left me, and my grandchildren came and climbed upon my knees. I hesitated, doubtful of the result, but not for long. The cry "Tell us the secret!" did not cease for an instant. So I told them to have their plumbing work done by the day.

Alas I this only served to arouse the multitude to greater frenzy. A howl of vengeance arose. A hundred spears pointed toward my breast; flashing cimeters aplit the air, while they shouted "Make a crescent of the cowardly son of a Dervish!" "Turn loose the royal Bengal tigers and let them feast on his carcass and extras!" With the rush of a whirlwind they fell upon me and applied the Kibosh afresh and stripped me of my raiment. They stepped on my neck, and stood me on my head. Had not the Grand Vizier interposed at this juncture and succeeded in restor ing order and quiet, my fate was indeed sealed. He told them that I was old and feeble, to look upon my lean body, that my carcasa would scarce make a meal for a buzzard, and he would see that I paid for my temerity and never again darken the door of their asylum. While he held their attention I deemed it a good chance to sneak, and should doubtless have got safely away or been alain had I slept a single moment longer.

#### Montreal Master Plumbers.

The annual meeting of the Montreal Master Plumbers' Association was held last week in the hall of St. Joseph's Society, corner of St. Catherine and St. Elizabeth streets. Routine business having been disposed of, the meeting proceeded to the election of officers for the ensuing year, which resulted as follows:

President, J. Lamarche.

Vice-presidents, J. Date, A. Cham-

pagne and H. Paddon.

Secretary, W. Briggs.
English corresponding secretary, J. W. Hughes.

French corresponding secretary, J. Thibeau.

Financial secretary, J. C. Jocatel.

Treasurer, W. A. Stephenson.
Sanitary Committee, J. W. Hughes,
John Date, Jas. Mattinson, A. Sigouin
and J. C. Jocatel.

Arbitration Committee, P. Carroll, A. Demers, G. Yon, G. Rosser and H. Baillie.

Auditing Committee, J. Watson, A.

Rousseau and Theo. Jocatel.

Legislation Committee, F. Brunet,
D. Gordon, J. Burna, T. Leclaire and W. Britton.

Apprenticeship Committee, A. Demers, E. C. Mount, T. Jocatel, J. Bonhomme and J. Sadler.

The first named on each committee will act as chairman. The speech of the newly elected president stated that the association had already taken steps to secure incorporation, and that this being done they promised to give their attention to some of the by-laws of the city relating to sanitary affairs. A long discussion ensued upon the movement now on foot to repeal the Augé law, which provides for the protection of workmen and contractors, and upon the motion of A. Champagne, seconded by J. W. Hughes, the society placed itself on record as being in favor of the principle of the law as it now stands, and against any movement to repeal it, but at the same time recognized that it could be amended in regard to details. and a committee will walt upon Mr. Auge to talk over the matter with him. Before the meeting was brought to a close six new members were declared

#### Brass Pumps.

The cuts here shown represent pumps recently put on the market by the Goulds Mfg. Company, Seneca Falls, N. Y. TRAPS AND VENTS.

THE MASTER PLUMBERS' ASSOCIA-TION of Albany, N. Y., last week elected the following officers: President, Horace F. Westcott; vice-president, John H. Moran; recording secretary, John C. Dugan; financial secretary, Frank Schimp; treasurer, Timothy E. Kerwin. Trustees, Allen Gilmore, Frederick W. Ridgeway and John J.

According to a daily paper the average wages of plumbers in Russia arc \$12 per month; lu Peru au ordinary teamster earns as much in a week, from which it is inferred that it is better to he a teamster in Peru than a plumber in

B. D. WASHBURN has leased the building situated on the corner of Pearl and Franklin streets, Boston, Mass., to the Barrett Sanitary Depot for a term of ten years.

THE CHICAGO MASTER PLUMBERS' ASSOCIATION will hold their annual election of officers on the evening of the 24th inst. Nominations were made at the regular meeting on the evening of

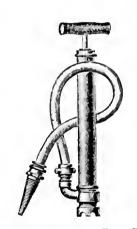


Fig. 1.—Plumbers' Brass Force Pump.

Fig. 1 represents a plumbers' brass force pump, having a 1-inch cylinder and 16-inch atroke. The pump is furnished with 3 feet of hose and a conical tip, so that it may readily be connected to any ordinary sized pipe. The pump is designed for removing obstructions in waste or water pipes, and for this purpose the pump is placed in a vessel of water and the pipe to be cleaned is connected to the pump by the hose. It is stated that the pump is compact and that it may easily be carried in a sack of plumbers' tools. A brass lift and force pump is shown in Fig. 2, on an iron frame with a revolving lever, which can be moved at will to any desired position most convenient to operate the pump. The point is made that the change of the position of the lever involves no removal of nuts and bolts, and that it is as easily effected as the pump is to operate. It is remarked that where the head of water works is not sufficient to force the water above the first atories, the pump will be fully appreciated; also that the pump is small and compact and that but little space is required for its accommodation. cylinder is 11% inches in diameter, with a stroke of 31 inches. The manufacturers state that they can fit both the suction and discharge for either hose or wrought iron pipe, if so ordered, but that the anction is regularly fitted for 1-inch lead pipe and the discharge for 4 inch lead pipe.

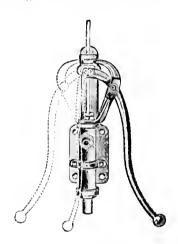


Fig. 2.—Brass Lift and Force Pump.

the 10th inst. As the regular meeting night this year falls on Christmas eve, it is, however, likely that the Execu-tive Committee may call a special meeting for the election on some other date, probably on Friday, the 21st.

WALTER BUSEY, George W. Goodall, J. S. Lanshan and William T. Sweet, Washington, D. C., having each passed a satisfactory examination, will become registered and licensed as master plumbers upon the filing of the requisite bond.

ONE OF THE ATTRACTIONS to the passerby down Beekman atreet, this city, is a full sized bathtub suspended over the door of No. 56. The bathtub is painted blue with gilt trimmings, and is one of the Ward steel cased asbestos lined tubs for which S. Davison is New York agent.

INSPECTOR DEAN WILSON of Buffalo, N. Y., is waging war against all plumbers who do not comply with the law in that city.

PETITIONS are being circulated in Decatur, Ill., says a local paper, addressed to the Legislature and asking for the passage of a bill regulating the plumbing in cities. Physicians cape-cially are now asked to sign the petition. The bill proposed provides for a commission including the chairman of the Board of Health, the Inspector of Public Buildings and a master of plumbing. They are to examine and license all who wish to engage in the business of plumb-Inspectors of plumbing are to be appointed to see that the plumbing in the city is safe and in good sanitary condition. Physicians say the bill is a good one and should become a law and then be enforced.

JAMES F. TRAYNOR of Wilmington, Del., has been appointed by the National Association of Master Plumbers of the United States to be organizer of local associations. With this end in view he will shortly visit a number of cities and towns in Pennsylvania for the purpose of organizing associations of master plumbers.

THE JAMES McDonald & Sons Com THE JAMES McDONALD & SONS COM-PANY of Cincinnati were incorporated last week by James McDonald, James M. McDonald, Edward McDonald, John Dooley and George F. Ender. They have a capital stock of \$75,000, and will manufacture and deal in tin plate, lead pipe, type metal, pig lead and plumbers' supplies.

ALBERT G. and C. EDWARD BUSH-NELL and J. NEWTON MEANS have formed a partnership for the sale of tubings, gas and plumbers' supplies in Buffalo, N. Y.

THE STATE SANITARY ASSOCIATION of New Jersey concluded its annual meeting at Trenton last week with the election of the following officers: President, David C. English, M.D., New Brunswick; first vice-president, Shippen Wallac, Ph.D., Burlington; second vlce-president, James Owen, C.E., Montelair; recording secretary, Daniel Strock, M.D., Camden; corresponding secretary, Prof. J. M. Watson, Elizabeth; treasurer, George W. Howell, C.E., Morristown.

THROUGH THE COURTESY Of David Smith, chairman of the Entertainment Committee, The Metal Worker is in recommittee, The Metal Worker is in receipt of an invitation and ticket to attend the annual ball of the master plumbers of Boston and vicinity at Odd Fellows' Hall, 545 Tremont street, Boston, on Tuesday evening, January 1 1895. The early part of the evening will be devoted to a concert, and the card announces that dancing will be the feature from 9 to 2 o'clock. Music will be furnished by the Howard Richardson Orchestra.

J. F. BLACKSHAW of Jersey City, one of the plumbers who were elected to the New Jersey Legislature, is prepar-ing a sanitary bill to offer to the Legis-lature when it convenes in January.

A MASTER PLUMBERS' ASSOCIATION will be organized in Jersey City, N. J., for the near future, plans for accomplishing that result having been perfected and a notice for the final meeting will be issued soon.

THE MASTER PLUMBERS of Newark, N. J., held their annual election last N. J., held their annual election last Tuesday night, when the following officers were selected: President, Elias Berla; vice-president, Walter P. Dunn; secretary, Ira T. Budd; financial secretary, William Jacobi; treasurer, F. J. Stern; Sergeant-at-arms, E. J. Leonard.

THE FIRM OF BOWEN & BEACH, manufacturers of Patent Corrugated and Standard Soil Pipe, Fittings and Plumbers' Castings, Medina, N. Y., have been succeeded by Beach & Co., Mrs E. A. Bowen having disposed of her interest to the other partners, Geo. A. Beach and Chas. J. Beach. The business will be continued as heretofore under the management of Geo. A. Ropph Geo. A. Beach.

EDMUND F. BUTLER, formerly with Dalton-Ingersoll Company, is now with Peck Bros. & Co., 65 Oliver street, Boston, Mass.

F. D. MILLER of the Trenton Pottery Company, Trenton, N. J., was a visitor among the New York Plumbing Supply houses this week.

THE PARTNERSHIP heretofore existing between John R. Cummings and Jeremiah J. McCarthy, doing business as plumbers under the firm name of J. R. Cummings & Co., at Norfolk Downs, Mass., is dissolved by mutual consent, and the business will hereafter be carried on by John R. Cummings.

DAVID YEAGER has moved his plumbing shop under Thobro's drug store at Laramie, Wyo.

Some of the plumbing inspectors of Chicago have been disciplined by the Health Department for neglecting their duties.

THE SOCIETY FOR POLITICAL STUDY THE SOCIETY FOR POLITICAL STUDY met last Tuesday afternoon at No. 144 Madison avenue, New York. The programme for the day was a paper on "Sanitary Conditions and Laws of New York City," which was to have been read by Dr. Mary Brinkman, but as she was unable to be present there was merely a general discussion on the submerely a general discussion on the sub-A large number of women was present, many of whom had some idea to advance in regard to sanitary reform and the improvements which they considered might be made.

### Drawback Rates.-II.

The Treasury Department has issued a synopsis of all the decisions rendered during the past few years in regard to drawback rates. We print below those likely to be of interest to the readers of The Metal Worker:

oofing, galvanized corrugated sheet iron, from sheet iron and spelter, same as duty paid. Propertion of spelter and iron to be stated in manufacturer's affidavit in each order.

each entry.
Sad Iron: manufactured by Bliss & Drake
of Newark, N. J., at following rates per

each entry.

Sad Iron: manufactured by Bliss & Drake of Newark, N. J., at following rates per dozen:

For No. 1, weighing not less than 39 pounds to the dozen, 16 6 per cent.

For No. 2, weighing not less than 48 pounds to the dozen, 19.6 per cent.

For No. 3, weighing not less than 58 pounds to the dozen, 23.6 per cent.

For No. 4, weighing not less than 47 pounds to the dozen, 19.6 per cent.

For No. 5, weighing not less than 55 pounds to the dozen, 23.6 per cent.

For No. 6, weighing not less than 67 pounds to the dozen, 23.6 per cent.

For No. 7, weighing not less than 77 pounds to the dozen, 29.6 per cent.

For No. 7, weighing not less than 89 pounds to the dozen, 33.6 per cent.

For No. 9, weighing not less than 97 pounds to the dozen, 33.6 per cent.

For No. 9, weighing not less than 113 pounds to the dozen, 36.6 per cent.

For No. 10, weighing not less than 113 pounds to the dozen, 42.6 per cent.

Smoothing Irons, self heating or charcoal: manufactured by Bliss & Drake of Newark, N. J., at the following rates per dozen:

For No. 1, weighing not less than 59 pounds to the dozen, 20 cents.

For No. 2, weighing not less than 77 pounds to the dozen, 20 cents.

For No. 2, weighing not less than 78 pounds to the dozen, 26 cents.

For No. 3, weighing not less than 78 pounds to the dozen, 26 cents.

For No. 4, weighing not less than 87 pounds to the dozen, 26 cents.

For No. 4, weighing not less than 87 pounds to the dozen, 29.6 cents.

Solder used in cans on imported lead used, 2,465 pounds per 100 cans.

Solder used in soldering tin cans, composed of lead and imported plg tin, same as duty paid. Limited 1.449 pounds pig tin per 100 cans.

Solder used in soldering tin cans, other than 5-gallon square cans, 1 cent for each 1000 running inches of the soldered seams.

Strel Pipes, galvanized or asphaltum, and tar-coated steel pipes: manufactured by

steel Pipes, galvanized or asphaltum, and tar-coated steel pipes: manufactured by Francis Smith & Co., San Francisco, Cal., from steel sheets, same as duty paid. Deduct from net weight of galvanized pipes 9 per cent.; asphaltum and tar-coated pipes, 6½ per cent.

Tin Cans, 1-pound salmon; samples of blanks and scrap to be weighed and allowance made for wastage equal to weight of scrap, not to exceed 25 per cent. of weight of blanks.

Tin Cans filled with domestic tobacco, 90 per cent. of duty paid on tin plates.

Tin Cans, 5-gallon rectangular, made from a combination of two plates 14 x 18% inches, with one plate 10 x 20 inches. Allow for each 100 cans 52,460 square inches of 14 x 18% plates, or 1.6117 boxes of 124 sheets each, and 19,944 square inches of 10 x 20 plates, or 0.4432 of a box of 225 sheets each.

Tin Cans. blain: manufactured by the

low for each 100 cans 52,460 square inches of 14 x 185/ plates, or 1.6117 boxes of 124 sheets each, and 19,914 square inches of 10 x 20 plates, or 0.4432 of a box of 225 sheets each.

Tin Caps. plain: manufactured by the Devoe Mfg. Company of New York City from imported taggers tin plates, same as duty paid. Allow 7 pounds plates for each 1000 plain tin caps.

Tin Caps. plain: made by the Standard Oil Company of New York, Devoe Works, New York City, from imported 14 x 183/ coke tin plates, each box averaging 110 pounds and containing 124 sheets, and attached to 5-gallon tin cans, same as duty paid on 13.7 pounds of tin plates for each 1000 plain tin caps.

Tin Caps. made by Standard Oil Company of New York at their works at Constable Hook, N. J., from imported 14 x 183/ IC coke tin plate (each box weighing from 109 to 110 pounds and containing 124 sheets), and attached to 5-gallon cans exported, same as duty paid on 15.6 pounds of tin plate for each 1000 tin caps.

Tin Caps. plain: made by the Standard Oil Company of New York, Some & Fleming Works of New York, From imported 14 x 183/4 tin plates, each box weighing not less than 109 pounds and containing 124 sheets, and attached to 5-gallon tin cans, same as duty paid on 12.7 pounds of tin plate for each 1000 tin caps.

Tin Laps plain: made by the Standard Oil Company of New York, From imported 14 x 183/4 tin plates, each box weighing not less than 109 pounds and containing 124 sheets, and attached to 5-gallon tin cans, same as duty paid on 12.7 pounds of tin plate for each 1000 plain tin caps.

Tin Handle Blanks made from imported IV tin plate for each 1000 plain tin caps.

Tin Handle Blanks made from imported tin plate or 8.3 pounds of 14 x 194/4 IC tin plate or 8.3 pounds of 14 x 194/4 IC tin plate for each 1000 Allantic handle blanks, and 6.71 pounds of 14 x 194/4 IC tin plate for each 1000 Allantic handle blanks, and 6.71 pounds of 14 x 194/4 IC tin plate for each 1000 Allantic handle blanks, and 6.71 pounds of 14 x 194/4 IC tin plate for each 1000 Allantic

Allow 96% pounds the to each to peach shingles.

Tin Taps, stamped, plaiu and decorated: manufactured by Somers Bros. of Brooklyn, N. Y., from imported tin plates, same as duty paid. Plain tags, add to net weight of tags 15 per cent. of such weight, decorated tags allow only for such net weight, provided that no scraptin was used in the manufacture of such tags.

The city of Copenhagen, Deumark, has been declared a free port. This action marks the beginning of an aggressive commercial policy by the Danish Government. All tonnage dues on vessels arriving in the port are abolished and extensive warehouse accomlshed, and extensive warehouse accommodations are provided to enable shippers to store their goods economically for reshipment and distribution among the other Baltic ports without paying any duty.

### HEATING & PLUMBING.

#### NEW WORK AND CONTRACTS.

THE COMMITTEE ON HEATING AND VENTILATING of the Board of Educa-tion of Brooklyn, N. Y., have accepted the bid of Donegan & Swift at their price, \$3195, for supplying four tubular boilers and tanks for schools Nos. 106 and 107.

Bids for heating and ventilating the new High School Building, at Scranton, Pa., are being advertised for.

P. H. DONAHOE, New Rochelle, N. Y., plumber, ateam, gas and water fitter, has added slate roofing to his line of business and has already several joba on hand.

M. Gallert is having his atore on Main atreet, Ellaworth, Maine, fitted with a hot water heater. J. P. Eldridge is a No. 10 Volunteer. The pipes are being placed along the front of the counters and behind them, and large radiators will be set in the center of the radiators will be set in the center of the floor and in the office. The second floor will be heated also. When completed, will be heated also. there will be about 700 feet of radiation in the building.

8. A. PHILLIPS, Amherst, Mass., has the contract to do the plumbing on the High School and Public Library Building in Holden.

W. M. FORWARD & Co., Sycamore, Ill., have been putting in the heating apparatus and plumbing for the new hotel at Elburn.

GRAHAM WATTS, Honesdale, Pa., has secured the contract for heating by steam the sheriff's house and jail at that city, using the No. 3 Standard ateam boiler manufactured by Giblin & Co., U:ica, N. Y.

Amono the many recent contracts received by the Canfield Stove Company, Kingaton, N. Y., is the plumbing, hot air heating and tin work on the large new residence being erected in Rhine. beck village for F. Snyder of Brooklyn, N. Y.; they also have the contract for similar mechanical work on the new residence being erected at Big Indian, N. Y., for T. J. Bravant, likewise the contract for ateam heating in School District No. 2 (Ulater Academy).

FOSTER & GLIDDEN, 53 Dearborn street, Chicago, are to install a Farqubar hot water heater in the residence of H Henderson, Madison and Fiftyfirst streets.

THE ALBERENE STONE COMPANY, agents for the Smith & Anthony Company, 219 Lake street, Chicago, bave the contract for placing two Hub warm air furnaces in St. Peter's Church.

B. D. DUGGAN, 207-209 Lake atreet, Chicago, has contracts for the placing of Richmond warm air furnaces as followa: Residence of James I. Ennis, Rogers Park, one No. 240; residence of James L. Mason, Linden Park, one No 624; flat building of Charles Wag. ner, 1213 Fifteenth atreet, two No. 621.

J. J. WADE & Son, 276 Dearborn street, Chicago, have the contract for the plumbing, gas fitting and sewerage in the two residences of White & Bennett, 4610-4612 Woodlawn avenue.

E. BAGGOT, 169-171 Adams street, Chicago, is to do the plumbing, gas itting and sewerage in the Chicago Horae and Carriage Repository, Wabash avenue and Sixteenth street. Another radiators in the same building.

firm had previously been awarded this contract, but they had made an error in their bid, which caused it to be withdrawn.

THE JOHN DAVIS COMPANY, 69-79 Michigan street, Chlcago, are to install a steam heating plant for the Sunnyside Restaurant Company, 3110 North Člark

THE KEWANEE BOILER COMPANY, 96 Lake street, Chicago, report the follow-ing sales of Haxtun bollers: Residence of Reed & Law, one No. 10; residence of F. A. Hill, one No. 41; flat building of B. Token, one No. 6½; residence of Mrs. Joseph Asron, one No. 7½; flat building of I. Ralph, one No. 10; store building of Carson & Co., one No. 10; residence of Rev. Father Hearn, one No. 9; flat building of Inspector Hunt, one No. 101; Dr. Harper's residence, University of Chicago, one No. 101; that building of Walter Nelson, one No. 101; flat building of Robert Johns, one No. 61; flat building of J. C. West, one No. 61: Frank Barclay, for United States Government Building, Beatrice, Neb., one No. 10.

THE CITY COUNCIL COMMITTEE OR Education of Baltimore, Md., has decided to report favorably on a proposed appropriation of \$6000 for heating and ventilating apparatua in English German School No. 6, to be erected at the corner of Smallwood and Ramsay

W. F. PORTER & Co., 210 Third atreet South, Minneapolis, Minn., aecured the contract for the heating and ventilating plant in the Minneapolis Hospital for the Insane at Fergus Falls, and have now commenced the work. The apparatus to be used will be the Hot Blast, with direct radiators and fan ventilator avatem, all run by electricity.

JOHN T. MAHER, Nebraska City, Neb., has the contract for the plumbing in the new G. A. R. Memorial Building.

THE BARCOCK PLUMBING & HEATING COMPANY, Hornellsville, N. Y., have been awarded the contract for the fittings in the Sherwood. Their bid was \$1060.

M. ABBOTT'S SONS, 137 Eighth avenue, New York, have just completed the installation of hot air apparatus for heating a building at 45 Eighth

EDWARD E. PARKER, Woburn, Masa., has contracts for heating the residence of William O'Reilley, Frank Menchen, Charles Menchen and two houses for Mra. S. E. Cotton. Gurney hot water boilers and Richmond steam heaters are used in these contracts.

John N. Page & Co, Naugatuck, Conn., have a contract for the heating and plumbing of the new house of F. W. Towles, on Beecher Highta.

P. II. DONAHOE, New Rochelle, N. Y., is at present doing the plumbing and heating of four houses, besides having the contract for the tinning work.

RICHARD PARRISEN, Asbury Park, N. J., has purchased from Dublia & Darragh, New York, Volunteer steam heating apparatus, which he is installing in the Commercial Hotel and Angels house of his city. gola house of his city.

F. B. Robertson, Bayslde, L. I. has recently completed a fine job of plumbing in the residence of Mr. Gillis, at Flushing, L I, and is now installing a Royal hot water heater and Corry

BAKER & Son, Chester, Pa., are using four No. 21 All Right boilers in heating contracts which they have in

A. B. Spropt of New Haven, Conn., is using a Humber hot water heater for heating his store; also in the house and greenhouse of James Bruce, In the Ilumboldt Billiard Hall and Café and in the residence of 11 D. Hotchkiss, at Westville, Conn.

THE TUEO JACOBS COMPANY, 72-74 Market street, Chicago, are to install a hot water heating plant in the realdence of Phillip Stein, 4620 Grand Boule-

METZ Bnos, 107 Twenty second street, Chicago, are to install an overhead system of hot water heating in the apartment building of J. R. Iloxie, Michigan avenue and Forty-fifth street.

WM. A. EIGHLER, 75 Twenty-second street, Chicago, is to overhaul the plumbing in the building of W. Terry, Jackson street and Plymouth place.

Conlon & Montgomeny, 33 Dearborn street, Chicago, are to furnish a steam heating and ventilating plant for the Home for Juvenile Female Offenders, Geneva, 111.

SEALED PROPOSALS will be received at the office of the Supervising Architect, Washington, D. C., until January 8, for work, including the plumbing, for the United States Post Office Building at Rockford, Ill. Drawings and specifications may be obtained from the superintendent, at Rockford, or from the Supervising Architect, at Washington.

Соок & Сикк, 253-255 Kinzie atreet, Chicago, are to install a steam heating and power plant in the fur-niture store of Mrs. A. A. Cheney, 359-361 West Madison street.

The Gordon disappearing gun carriage for a 10-inch rifle was teated for time and rapidity on December 3, at the Sandy Hook proving ground, in the presence of the Assistant Secretary of War, the Ordnance Board officials, and representatives of the builders, the Morgan Engineering Company of Alliance, Ohio. Thirty-two shots were fired within an hour, and the trial was regarded as an entire auccess. This carriage is slightly different in its equipment from the one tested some time ago. It is worked by electric motors, one for the air compressor and one for moving the carriage. The total weight of the car-riage is 325 tons, while the gun weight 27 tons. The contract price was \$48,-000, and according to the terms ten ahots were to be fired in an hour, with a bonus of \$2000 for each additional shot fired. Monday's performance, therefore, secures to the builders a bonus of \$14,000.

Johnson & Morris, 239 South Fifth avenue, New York, made an assignment this week to George Vassar, Jr., with-out preference. Wm. J. Underwood, out preference. the attorney for the assignee, said that the assignment would probably be only temporary, and that the firm would be able to pay all the creditors in full in time and have considerable surplus. It was brought about by the depression in their line of business, the amount of business done in the past year having greatly decreased, while the expenses ran on about the same. There are no creditors pressing them, but they thought it best for all concerned to make an assignment.

## STOVE TRADE NOTES.

#### Norman H. Galusha.

The many friends of Norman H. Galusha will regret to learn of his death, which occurred a few days ago at his residence on Court street, Rochester, N. Y. He had been in poor health for some time, and while a trip abroad proved of temporary benefit it was not fasting, and during the past month he was confined to his room. Mr. Galusha was born January 23, 1830, in Rome, N. Y., whence he removed with his parents to Rochester in 1835. He attended the city schools, graduating at the high school, and then went with the late John M. French to learn the foundry business. In 1853, at the age of 23, he established the Galusha Foundry, recently incorporated as the Galusha Stove Company, and of which he has always been the manager and principal atockholder. He was connected with many other business enterprises, being a director of the Commercial Bank and a large stockholder in the Charlotte Iron Company. He was for many years president of the Rochester & Lake Ontario Railway, now known as the Rocheater & Irondequoit Rallway, and possessed large landed interests in Dakota and the State of Washington. He was a member of the Chamber of Commerce and the Rochester Club. Mr. Galusha was very successful in business, a man of strict integrity, of a modest disposi-tion, never seeking or accepting public office, and withal a wise counselor. The funeral services were held from the residence of his sister, Mrs. John Van Voorhis, on East avenue.

#### Illinois Freight Rates.

The dissatisfaction with Illinois freight rates, which has been increasing for several years, culminated in an appeal to the State Railroad and Warehouse Commission in Chicago, en Wednesday last, for official action without further delay. Representatives of wholesale hardware, grocery, atove and other houses, exceeding 150 firms in all, made a strong effort to accure a reduction in the achedule of maximum freight rates per-missible on the transportation of merchandise locally in Illinoia. Chicago merchants and manufacturers claim that they are specially discriminated against in endeavoring to transact business in their own State. The consequence is that Central and Southern Illinois are almost beyond the pale of Chicago's influence Merchandise is hauled into this territory from other and more distant localities at a lower freight charge than if it originates in the State. Reference was made to this matter in our columns a short time since in connection with the Chleago stove trade to show how this important interest was suffering from unjust treatment by rail-Now that other great branches of trade have joined hands to accure fair rates, some hope exists of relief being secured.

HENRY GLEASON, 10-1 Beekman street,

some houses who contemplate the manufacture of gas stoves, in the interest of his line of brasa goods in ornamenta, stop cocks and air mixers for gas gooda.

#### The Open Fire Place.

The paper of John Ward on the open fire place, past and present, has evidently been regarded with no little interest by American readers, one of whom takes the opportunity of showing what seems to him to be erroneous conclusions, and more especially the difference between American and English open fire places. This writer, Will Walter Jackson, whose criticism appeared in Architecture and Building, is well informed on the subject of fire place construction and his views are therefore entitled to consideration. He 88 78 :

In the article mentioned the open grate is treated in its simplest form, radiation being considered wholly as the heat to be gained. "Heating by radiation." Mr. Ward atates, "is taught by the solar aystem itself. By the rays of the sun the whole earth is warmed and nourished, and all nature made joyous and healthy." Radiant heat is undeniably the most invigorating and healthful means of warming oneself and one's surroundings, but the open fire in the side of a room is quite different in its distribution from the heat of the sun with ita impartial rays. If, in a room heated by a single source of radiation, the north walls were equally as warm as those on the south, and the floor was no colder than the ceiling, the open fire could be compared with the aun, and could be looked upon as the best form of heating apparatua.

#### Distribution of Heat.

Unfortunately the ordinary open fire place does not distribute its heat equally in the room it is supposed to warm, and the floors are most unbearably cold, due to the current of chilling air that supplies the draft of the grate. J. P. Putnam, architect, speaking of this cold current, states: "It has even been found possible to roast a goose in front of such a fire, while the air flowing by it into the chimney was freezing cold."

But this cold air, Mr. Ward tells us, is especially to be desired. "By direct

radiated heat from the open fire place, he writes, "we get warmth for bodily comfort, while the air we breathe may remain cool." Why should this be desired when, depending on the ideal solar heat, the air is so nearly the temperature of surrounding objects? It is both unreasonable and untrue that our homes should be filled with air little warmer than the wintry winds without. Count Rumford said: "I have no doubt that thousands die in this country (England, 1800) every year of consumption occasioned solely by this

#### Size of Fire Place.

It was to decrease these drafts, which, by the way, could not be supplied in New York, spent a portion of the week in Baltimore and Philadelphia, visiting exterior walls, that the fire places were cans.

made smaller, being now only one-fourth the size of those in the days of Elizabeth; and to prevent the cold drafts altogether, English, French and, later. American experimenters have adopted schemes by which the grate brings the air in warm.

This last is important in the hlatory of fire places, as not only is the heat more evenly distributed and the ventilation made more nearly perfect, but an enormous saving of heat is secured. That which was formerly lost through the back and sides is by this arrange-ment saved in the form of convected heat, while in no way is the radiant heat decreased.

The advantage, purely from the heating standpoint, is seen in comparing the best grates of each country. The Marlborough, Mr. Ward says, is the best English grate, this having warmed a room of 2000 cubic feet of space for 36 hours to a temperature of 75°, the thermometer hanging in the direct rays of mometer hanging in the direct rays of the fire. The fuel consumed was 70 pounds of coal, and the external temperature was below freezing. The best American grate will heat a room of 5000 cubic feet of space to the same temperature with the thermometer shielded from the direct rays of the fire (and of course to a higher degree if directly in the rays), using the same fuel, in the same length of time, with the external temperature 20° below freezing.

#### The Primitive Grate.

But as Mr. Ward confines his remarks to "the open fire place, pure and simple," it is but fair to compare those he describes with the primitive, i. e., pure and simple, grate of our country. The typical English grate is very narrow not over 18 inches wide—and has a very shallow basket. This means a small fire, and, as every one knows, a small is an expensive one to run, compared with a larger body of coals. Thus, in the experiment Mr. Ward describes, the fire is replenished "only six times in 36 hours," while no American housekeeper with the most undeveloped form of creats would somewhat for most an experiment to the company of the company has been presented. form of grate would renew her fire more than three times a day, or four times in the 36 hours. In the writer's office the grate burns this long with no intermediste attention, going from Saturday until Monday without renewal of fuel. This can be done with any good American grate, and a fire may and should be kept continuoualy from fall until spring.

#### Banket Graten.

Here the haskets are 18 inches deep Instead of, as in the English, 6. They are 22 or more inches long instead of only 12 or 15. Width and depth are secured rather than hight. The English scheme of setting the grate back in the fire place, with splays on either side, is neither beautiful nor wise. Our grates are set out as far as possible without causing them to smoke, and every wood mantel is "boxed out" 8 or more inches, adding materially to the amount of heat sent into the room. The English "hob" and "dog" grates are both far from successful and, after a trial, have been discarded by Ameri-The movable or "portable"

grates are equally lacking in heating power in both countries.

#### Ventilation.

For ventilation, Mr. Ward says the grate, pure and simple, is "better than other methods," but wishes the fire place still larger, and, more especially, with the opening still higher from the floor. That with an opening 4 feet 6 inches high "we may sit, if not stand, in an atmosphere that does not become atagnant and vitiated." If, as one is led to suppose, an open fire place ventilates only to the level at which its opening ceases it must be a very poor system. And if above this level one has warm but foul air, while below that hight one has pure but cold air, English houses have little comfort in winter. Mr. Ward is correct as to the limits of the ordinary grate as a ventilator, and why this is "better than other systems." is hard to see. Fortunately, here a grate is seldom used except it itself introduces the air supply, warm and pure, or some indirect heater meets the demand. Then the grate, besides giving off the radiant heat, causes a thorough circulation of air in the room, the downward system of ventilation being secured. All parts are practically at the same temperature, and, in contrast to Mr. Ward's scheme, the lower the opening of the grate the better will be the results, both of heating and ventilation.

With a strange love for the unde-

With a strange love for the undeveloped, Mr. Ward admires the Indian's tent, with the fire in the middle, while the smoke escapes from a hole in the top. True, all radiant heat, as well as some of that from the hot gases, is retained, but can this be "far ahead of the low openings of modern times," in our grates, "as a means of ventilation?" With the atmosphere at times "somewhat cloudy" surely it cannot be called good ventilation. Adding smoke to the foul air of the room is a strange way of supplying the much desired oxygen.

Although the open grate is used to a much larger extent in England than it is here—and we can hardly compare the two, for there it is used almost exclusively, while here it is used only as a luxury—English fire places are far inferior to those of American make.

#### An East Side Stove Dealer.

ny JEEMS,

Heinne Schnitz, whose picture I show here, is one of the numerous New York east side stove dealers. He is located not far from that busy mart of Ludlow and Hester streets, and is as sharp as they make 'em where money matters are concerned. If you sell Heinne anything you can be sure you will get your money, but he is not particular if he pays on time. Heinne arrived here one cold winter morning not many years ago and went to work for an Essex street tinker. In the afternoon he was sent down to Water street in tow of a nine year old daughter of the boss, who did the ordering, and Heinne did the lugging, and this was his start. It is surprising how bright many of these little ones are, and how much they will remember about repairs and run to get them. It shows, too, that business ways and habits are early acquired by the east siders. As soon as Heinne could understand English a little he started business for himself in a basement, without much more than a hammer and snips, and when he cleared "twelf dollar" the first week he was a made man. A few weeks afterward he went one day down to Castle Garden met a platt-

deutsch girl just arrived; proposed to her; took her up in an express wagon, with her box; married her the same night, and the next morning Lena was in the business for fair. That was ten vears ago and there are now ten little Lenas and Heinnes mixed up with the stoves, po's, &c., in his store. Lena weighs a ton and is as keen as a razor in buying or selling. She can beat Heinne at the former—in fact he don't buy anything unless she says so. She is the boss and no mistake.

As soon as these people begin to save money they want to huy a house, and they don't seem to mind how big the mortgage is. They pay prices that native New Yorkers would deem absurd "because it was not in an improving section."

Heine bought an old tumble down place in the vicinity of Ludlow street



Heinne Schnitz.

for \$7000; paid \$1000 down and took a mortgage for the remainder. His neighbors said he "was crazy, was sthuck," &c. And it did seem so. For two or three years Heinne had a hard time of it. One day a man came in the store to see if Heinne would sell the place and get a price on it. Much to his surprise Heinne wouldn't sell, and would give no price, and no inducement could make him talk; but later on he told the man he would sell "for 12.000 tollar. Not one dime cend less." It made the would be Israelite buyer fairly screech, "Twelve toosand tollar! Your a tamed loonatic!" and he bolted out of the store. The neighbors heard of it, and they also thought he was crazy. People are so crowded over there that you couldn't whisper without it being heard by 50 persons. All sorts of tricks were tried to get Heinne to sell, as his place was needed to complete a double decker tenement, though he didn't know it, but Heinne wouldn't budge. The would be buyer thought he could buy Heinne out any time for a "gupple hunderd tollar," so he said, hut "twelve toosand tollar—der mans is loonatics asylums krazy." Without going into all the particulars, Heinne got

\$10,000 for the place and \$1,000,000 in curses from the buyer. Heinne bought another house for \$16,000 and got "athuck bad," so they said, but sold it out in some months for \$1500 advance, and Heinne is now good for \$17,000 or \$18,000 in solid paying property. People all know too much, and predict losing results on all deals made by greenhorns, but the facts are they turn out pretty successful, and there is such a thing as knowing too much. They know nothing about how the city was, but pitch in, and it would surprise people to know how prosperous these greenhorns become.

Hardly one of them who started as Schnitz did and bought property has failed to become well to do and independent, and is steadlly accumulating. Their expenditures never ereep up as fast as their incomes. The latter are way ahead and are kept so. Heinne has got an "oppersition" across the street, and his name is Schpltz, and they both stay out in the street watching each other like cats. They will pull a customer clear across the street if they get a chance. A drummer said he was in Helnne's store some time ago, and a woman came in to buy a tin pan, and he asked her 20 cents for it. She said "it was too tear, she gld him across the streeds for swelve cend." This made Heinne mad, and he and her jawed about the matter until you would think a thousand-dollar sale was involved. Heinne said to his wife, who was back in the room off the shop, which is used for parlor, kitchen, bedroom, and storage for stoves, tin and other bric a-brac connected with the "profeshion," "Lena, you hear vat der lady says. She says she git der

twenty-cent pans for swelve cent across the streed." "She is a liar," said Lena.

"Here dot, my vife says you are a liar.
She knows dot feller is a stinker; he
don't pay for his goots," and Heinne
called him everything he could think

of. I guess they skirmished about that pan over a half hour, and just as the

customer was going aeross the street Heinne followed her to the gutter and

sold her the pau for 12 cents. Schpitz was watching the proceedings from the opposite side of the street, and he screeched like a big baboon because Ileinne had captured his "kostemer."

I asked Heinne how much he made on the sale. "A kopple of cend," he replied, and he paced up and down the walk watching for customers, serene as a summer day.

## The Michigan Vapor Stove Company

of Grand Rapids, Mich., have issued a very attractive catalogue for the season of 1895. It comprises 40 pages, bound in richly embossed paper covers. The company's trade-mark is conspicuously used. This is a representation of their jet cone burner, which is alluded to throughout the catalogue as a specially valuable feature of Michigan vapor stoves. Small cones are formed on the surface of a flat plate, and each cone has a slot in it. These cones are placed very close together, and consequently the burner in operation has a large number of jets of blue flame which give an intense heat. Stationary tanks are used on these stoves, but they cannot be filled while in position. They are constructed on the same principle as the reservoir of a student's lamp. Thus the tank is easily lifted out when empty or nearly so, and carried to the place in which the supply of gasoline is kept. The illustrations in the catalogue cover

a number of rew styles of stoves which have been brought out this season. The leading stoves are made with a single generator and with two or three burners and a step. The generator has burners and a step. The generator has a sub-light, so that the burner can be lighted quickly, with very little smoke or odor, and the step burner can be used without running the generator, thus effecting a considerable saving when a fire for ironing or baking is wanted. Stoves of the same size and style are also made with individual generators.
This generator has a sub-light which will ignite the burner without relight-ing. Individual and single burner stoves are also made with three and two buiners, but without the step. High junior stoves, in the same way, are made with either single or individual burners, and with two or three burners, with and without step. High special juniors are made with three and two burners, and low special juniors with one, two and three burners. The line is thus seen to be comprehensive, covering stoves suited to every requirement. The catalogue also illustrates gasoline and oil torches for outdoor lighting and for use in foundries, rolling mills, warehouses, &c., and the Boss gasoline blow pipe. The blow pipe has a patent handle, adjustable to any angle, enabling the operator to get it in any desired position.

#### German Tile Ranges.

H. Rendtoiff & Co., 16 Lake street, Chicago, have just received from Germany a shipment of tile ranges made to their order by Hermann Koloseus, Aschaffenburg, Bavaria. This manufacturer exhibited at the Chicago World's Fair a line of stoves richly decorated with tile work, which attracted much atten-tion, and Mr. Rendtorff secured the agency for their sale in the United It was necessary, however, to adapt them to the American trade, and therefore patterns were sent from here to Germany for the proper construction of oven, fire hox, &c. Consequently, they are American stoves in design, although built in Germany to secure the peculiar tile finish of the German manufacturer. Two sizes are shown, namely, 8-18 and 8-20, each size being finished in both majolica and porcelain tiles. They have high shelves and water fronts, and are built after the pattern of wrought iron or steel ranges. They are named Grand Ideal, this name, together with that of H. Rendtorff & Co., being placed on an ornamental plate on the oven door.

The workmanship is of a superior character. Small tiles are riveted to the front and sides and to the upright supporting the high shelf, covering all iron parts in those sections of the The dcors and the upper porrange. tion of the high shelf are enameled in white to correspond with the tiles. The tiles are protected from crazing by the heat through the peculiar arrangement of the walls of the range. These are constructed of cast iron open work riveted to the frame and then filled with cement. The entire top, including the lids, is ground and polished. A nickeled towel rail surrounds the top, except the back. The knobs are cast and nickeled. The fire pot is oval shaped, with a draw center grate. The oven door is poised, being hung with a counter balance. A warming closet is placed below the oven. Import orders only are taken for these ranges, as the goods shown in the establishment of Rendtorff & Co. are to be used as samples. They

are of the opinion that in a short time some American manufacturer will take up this style of finish, as it will be preferable for many reasons to obtain such ranges from home makers.

#### ODD PLATES.

WE ARE INDEBTED to A. Weiskittel & Son, Baltimore, Md., for an exceedingly attractive circular illustrating ingly their Fire King oil heater. The castings of this stove are beautifully finished in nickel or brass plate, as may be desired, while the frame is set with jewels, the drum being of Russia iron. base and middle ring are connected by arms or supports, thereby taking the weight and strain from the oil reservoir and making at the same time a substantial piece of work. The drum is hinged tips back for lighting the burner and filling the tank. The top swings off so that cooking can be done if desired. The oil reservoir holds about 1 gallon, which is sufficient, it is said, to burn from 10 to 12 hours. The diameter of the drum of the stove is 8 inches and the hight 37 inches.

NEW PROCESS VAPOR STOVES" IS the title of a handsomely printed catalogue of 32 pages which reaches us from the Standard Lighting Company of Cleveland Ohio. The pages are very nearly square in shape and printed in two colors upon a good quality of pa-per. The binding is in paper with a side title embossed in silver letters. An introduction consists of a description of the New Process stove and the statement that it is entering upon its sixth year with a record of which the makers are justly proud. The goods shown are varied in character, running from the No. 1 Globe Junior with safety tank up to the most elaborate style of New Process cabinet range. Kerosene oil heaters are also shown, as well as ovens, lamps, torches, toasters, broilers, &c. A valuable feature of the pamphlet is a cut showing the correct names of all the parts of which a stove is composed. The company state that as the patterns are changed from year to year, it is necessary that they which the year the stove is made for which the dealer wants repairs and whether it is a No. 1, 2, 3 or 4.

The Ryus Hot Air Heatino Company of Kansas City, Kan., have just commenced the manufacture of what is known as the Ryus hot air heater. Numerous patterns of this stove are being made for the purpose of sending them to agents in different States, the intention being to establish a plant in every Northern and Western State. The heater proper is lined inside with rolled steel, the outside covering being of Russia iron. Between the two is an inch space extending all around and open at the top and bottom, which permits cold air passing upward from the floor being heated in its passage. There are nine flues passing through the stove and carrying cold air upward, the flues being enveloped by the fire within the stove.

The stove Men who were in Cincinnati last week attending a meeting of two districts of the National Association of Stove Mauufacturers were tendered a lunch at the Grand Hotel by Matthew Addy & Co., dealers in pig iron, of the city named. There were about 60 guests present and it was a thoroughly enjoyable sflair. While it was informal it was elegant in every way and after it was over George H. Barbour presented Mr. Addy to the

guests. Mr. Addy spoke in a happy vein and was followed in a witty speech by Lazard Kahn of Hamilton, Ohio, after which came Grange Sard of Rathbone, Sard & Co., Mr. Van Cleave of Buck's Stove & Range Company, George E. Dana of St. Louis, Fred. Gardner of Chicago and W. W. Baldwin of Cleveland.

THE TRADE will be glad to discover that their old friend "Jeems" has again entered into print. A few weeks ago he told about the Bowery and this week presents a biographical sketch of one of the well known characters of the east side.

AN ERROR WAS MADE OR page 52 in our last issue in referring to the improvements being made by the "Grand Rapids Stove Company" of Grand Rapids, Mich. This should have read the "Michigan Vapor Stove Company." A Grand Rapids paper, from which the item was taken, was responsible for the error.

A COMPLETE EQUIPMENT of electrical culinary appliances has been fitted in the kitchen of Queen Victoria's Scottish palace, Balmoral.

THE QUICK MEAL STOVE COMPANY, St. Louis, Mo., report an excellent demand for their Quick Meal gasoline stoves, one day's mail bringing them nine carloads—two for Indiana, four for Pennsylvania, two for California and one for Massachusetts. This company are preparing their annual catalogue, which will be ready for distribution on January 1.

THE PROVIDENTIAL TILE WORKS, Trenton, N. J., are bringing out some new designs in fire place tiles. One of the new designs is a moose head with spreading antlers amid pine boughs and cones. This is designed to reach across a wide fire place. The side pieces which go with this head piece show guns, hunting horns, hatchets, pipes and other implements of the sport. Another of their new tiles is a cap piece for wainscoting, arranged to pass both recess and projecting corners. This does away with the mitering of tile and enables the workman to make a much neater finish. These are but two new specialties, the company having an almost endless variety of tiles in all sizes of exceptionally handsome finish and design, some being so finished as to have the effect of hand painting.

THE DANVILLE STOVE COMPANY of Danville, Pa., and 284–286 Pearl street, New York, will look after the interests of the Monarch line of gasoline and gas stoves made by the Monarch Stove Company, Mansfield, Ohio, for the season of 1895, representing them in the States of New York, Pennsylvania, New Jersey and the New England States. The Monarch line will, we are advised, contain a number of new and striking features the coming season and samples of same are now ready for shipment.

THE RINGEN STOVE COMPANY, St. Louis, Mo., whose graphical representation of the increased sales of Quick Meal gasoline stoves by means of sectors of a disk is so well known to the trade throughout the country, have devised another diagram, or rather picture, illustrating in a most impressive way the multitude of Quick Meal stoves that were sold up to the close of the season of 1894. The picture (not full siz) is of a column 250 feet in width and 7043 feet high, which is supposed to be huilt up out of the 352,122 Quick Meal stoves that were sold up to the end of 1894. One is not surprised, therefore,

if the top of the column pierces the clouds, and that the representations of the Eiffel Tower, the Big Pyramid, the Ferris Wheel and St. Peter's Cathedral, placed alongside of it, seem insignificant in comparison. The stoves are supposed to be placed 100 side by side, making the column 250 feet wide. A shaft like this piercing the heavens is a worthy symbol of the aspirations of so progressive a manufacturing concern.

GEORGE M. CLARK & Co., 157 Superior street, Chicago, will have their new gasoline stove catalogue out about January 1. It will show some new features, but in the main the Jewel line of stoves will vary but little as compared with previous seasons. The company's experience has been so satisfactory that they have seen no reason to make extensive changes. Their process atoves will have an improved sub flame chamber, made more accessible and easy to clean, and the shelf below the tank will be made a little more ornsmental, but in other respects the construction and finish of previous sea-sons will be preserved. A new single generator stove will be brought out specially for the Eastern trade. It is a high atove with a broad top, so that at one end two cooking holes are arranged front and rear, and at the other end there will be a double burner for a portable oven or for heating a wash boiler, &c. The Jewel junior stoves will be listed at last year's Jewel Acme prices. Eight traveling men will cover the country in which sales are made direct by the company to retailers, comprising the Central West and running southwest to the Gulf of Mexico. The other parts of the country will be reached through jobbing houses. A large order for Jewel gasoline atoves, received from Turkey, was recently filled.

HORTON, GILMORE, McWILLIAMS & Co., 172 to 176 Lake street, Chicago, have recently taken the exclusive jobbers' agency for the sale of Cole's air tight heater in the States of Indiana, Illinois, Michigan and Wisconsin, but they have already established over 200 local agents in these States. mand is remarkable, in view of the generally quiet business in stoves. claim, however, that these stoves do not interfere with the sale of the standard type of stoves, because they are adapted to the burning of chips, bark, &c., as well as cord wood, thus enabling bedrocms in country houses to be heated at small expense which would otherwise not be warmed at all. This seems to be a natural inference from the volume of business now in progress. The heater is furnished in three sizes in Russia iron—22, 24 and 28 inches; and four sizes in smooth steel—22, 24, 28 and 36 inches.

According to the daily press in Louisville, Ky., the stove manufacturers in that city are very much pleased with the lower freight rate to the South, which went into effect on December 1. Efforts have been made for some little time by the stove manufacturers to secure a lower rate, and as a result of their endeavors a considerable concession was secured.

THE CLARK STOVE COMPANY filed on November 28 articles of incorporation with the Recorder of Deeds, at Kansas City, Mo. The capital stock is \$100,000, half of which, we understand, has been paid up. The stockholders, who live in Kansas City, are as follows: R. M. Clark, H. N. R. Umbach, A. M. Clark, G. A. Clark and B. O. Clark.

THE DAYTON MEG. COMPANY, Dayton, Ohio, favor us with a copy of a 20 page catalogue illustrating the Insurauce gasoline stove, which they manufacture in several varieties. This stove is fully illustrated and described in a way to interest the dealer, while directions are presented telling how to set up and operate the stove. Attention is also given in the catalogue to ovens, repair parts for the Insurance gasoliue stove, lanterns, and a list of code words for use in ordering goods The company are behind with by wire. their orders for the stove and will be compelled to increase their manufacturing facilities in order to meet the growing demand. To this end they are erecting a four-story structure, which when completed will be equipped with the necessary machinery for such an increase in their output as will enable them to promptly fill orders.

THE FIRST CALENDAR for the new year to reach our desk is that issued by the Fuller & Warren Company of Troy, N. Y. In its general appearance and

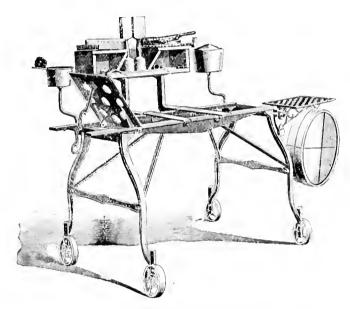
in a comprehensive manner the goods which they manufacture. We understand that the company are now engaged on a large order for their Champion steam and hot water heaters.

The Galusha Stove Company of Rochester, N. Y., recently filed articles of incorporation with the Secretary of State, at Albany. The capital stock is \$100,000; the directors being Norman H. Galusha, Hiram H. Edgerton and Michael H. Shea.

The Lebanon Stove Works of Lebanon, Pa., resumed operations on Wednesday, December 5, after a shut down for the purpose of making repairs.

## Rowland's Movable Molders' Bench.

The molders' movable beach here illustrated is introduced by the S. Obermayer Company of Cincinnati, Ohio. With its aid the molder need not carry heavy molds back and forth, inasmuch



ROWLAND'S MOVABLE MOLDERS' BENCH.

make up it is in keeping with those issued in previous years by this enterprising house, and is of a character to meet with a welcome wherever it goes. The leaves for the 12 months of the year are mounted upon a heavy card measuring about 11 x 14 inches, and are so placed as to display a border at the sides, top and bottom of about 1½ inches. This border is used for the name and address of the company, together with brief reference to their goods. The leaves of the months of the year are of variously tinted paper, with the figures in a deep brown or chocolate, which form a sharp contrast with the ground upon which they appear. A thirteenth sheet is devoted to a counting house calendar, which gives not only the days of the week and month, but also numbers the days of the calendar is a bird's eye view of the company's works at Troy, with mention of some of the leading lines manufactured.

THE THATCHER FURNACE COMPANY of 240 Water street, New York, are running their foundry in Newark, N. J., with a complement of 150 men, and the statement is made that their sales for 1894 are 25 per cent. in excess of those for 1893. They have recently issued an illustrated catalogue showing

as he requires only enough floor room to perform his labor, and, after pouring his work, he need not lift it more than to simply dump it where it lies, on the floor. It is claimed that more and heavier work can be handled on and from this bench than from one that is The bench is constructed stationary. The bench is constructed entirely of iron except the tool box, which is made of wood. It is culliciently large to allow the molder ample room to work and yet is so arranged as to be very convenient. The tool box, eponge pot and parting sand pot are so adjusted that the molder can have them as near to him as he desires. The tilt-ing shelf on the left of the bench is so arranged that he can lay his cope down with ease. The swing shelf on the right may be utilized to lay matches and The bench may be raised patterns on. or lowered, for the convenience of short or tall molders, it being adjustable from 2 feet 8 inches to 3 feet in hight.

Canadian natural gas was turned into Detroit on December 1 through the new main laid under the Detroit River. Fully half the consumers of natural gas in the city are now using the Canadian product. The company are at work laying a second pipe.

## TRADE REPORT.

#### The Iron Market.

The prospect of the early passage of the Patterson bill, amending the Interstate Commerce act so as to permit of pooling under certain restrictions, ought to reflect favorably upon the Iron trade. As soon as the principal customer of our industry is as able as he is willing to buy the goods he needs, the better days have come.

In Foundry Iron the attitude of the local producers in the Chicago district can only be tested by time. In other sections some of the large makers show a disposition to refrain from cutting. But there is ample evidence that the smaller producers are powerful enough to set a pretty uncomfortable pace.

Tin has had a little breathing spell, and has again crossed the 14¢ line. Copper has undergone a sharp turn and rumors to account for the change are numerous. Lead and Spelter drag wearily and there is little animation in the Tin Plate market.

Plg Iron.—The New York market is quiet and sales are limited. A sale of a round lot of Southern Iron for delivery at Sing Sing has led to some erroneous inferences as to the equivalent price at furnace. It is higher than is figured, because special freight arrangements were made. We quote \$12 @ \$12.50 for No. 1: \$11 @ \$12 for No. 2, and \$10.50 @ \$11 for No. 2 Plain, standard brands, tidewater delivery. Southern Iron, same delivery, is selling at \$11.25 @ \$11.50 for No. 1; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$10.75 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.50 @ \$10.

Business is very light in the Philadelphia market, and although prices are almost as low as they have been at any time on record, buyers seem unwilling to negotiste for any but moderate sized lots, and even then prices have to be made to suit. Sellers are anxious for business, but have to wait until buyers are ready to put in their bids. Deliverles are still somewhat delayed, from which it may be supposed that furnaces will not be hampered very much, even if there is a falling off in demand, which in any event cannot continue for any length of time. General quotations are about as follows for Philadelphia and vicinity, with the usual 20\$\psi\$ \$\text{@}\$ 30\$\psi\$ less at points within a radius of 100 miles South or West:

Bessemer	\$12.25	(et)	\$12.50
Standard No. 1 Foundry X	12.50	63	\$13,00
Standard No. 2 Foundry X	11,50	a	11.75
No. 2 Plain	10.75	0	11.00
No. 1 Soft	11.50	Cta	11.75
No. 2 Soft	10.75	0	11.00

Chicago advices intimate that the advance made in local Coke Iron last week in that market had a double effect. It caused the closing of a considerable number of contracts which had been pending, and checked the demand from other concerns to some extent. The early part of the week was thus somewhat active and the close of the week quite the reverse, although a few sales were then made at the advanced price. If the advance is

maintained the general opinion is that it will have a good effect in putting related lines on a substantial basis of value. The quiet condition of trade now prevailing is expected to continue for the remainder of the year, but heavy business is anticipated in January. Southern Coke Iron has been quiet, with the same conditions prevailing as before with regard to prices. A few inquiries are reported for scattered deliveries. The leading companies firmly maintain quotations, but less known brands are offered at concessions. Lake Superior Charcoal Iron has been moving in fair volume, with few sales running above 50 tons. Quotations are given as follows for cash.

Lake Superior Charcosi	<b>\$13.00</b>	0	\$14.00
Local Coke Foundry, No. 1.	10.25	Õ	10.50
Local Coke Foundry, No. 2	9.75	0	10 00
Local Coke Foundry No. 8.	9.50	0	9.75
Local Scotch	16.50	0	-11.00
Obio Strong Softeners No. 1	12.50	0	13,00
Southern Silvery, No. 1	11.50	Ø	11.75
Southern Silvery, No. 2	11.25	0	-11.50
Southern Coke, No. 2	10.25	0	10.50
Southern Coke, No. 3	9.75	œ.	10.25
Southern, No. 1. Soft	10.25	0	10.50
Southern, No. 2, Soft	10.00	0	10.25
Alabama Car Wheel	17.50	0	18.00
Jackson County Silvery	<b>15.</b> 50	a	16.00
Other Ohio Silvery	14.25	0	14.50

There is no improvement in demand worth mentioning for Foundry Iron in the Pittsburgh market, and prices are weak. A sale is noted of 200 tons of No. 1 Foundry at \$11, Pittsburgh. Quotations are given as follows:

No. 1 Foundry.......\$11.00 @\$11.25, eash.
No. 2 Foundry........... 10.60 @ 10.65

Dullness has been the most prominent feature in the Cincinnati market for Pig Iron during the past week. There have been a few sales of 500 and 600 ton lota, but the majority of the transactions have been small. There has been no change in the general tenor of the market. was developed through the convention of stove manufacturers, held in this city on the 4th and 5th inst., that the stove foundries have been large purchasers of Pig metal recently, some of the large transactions already noted in these columns having been with stove founders in the North and Northwest. There continues to be some urgency for the delivery of Iron already purchased to cover contracts placed, but less so than a few weeks ago. The printhan a few weeks ago. The principal salesmen of the largest local firms have returned home with the information that buyers show no disposition to purchase Iron now except for contracts already obtained, and the prospect is that the present bill will continue until the first of the year at least and possibly longer, but encouragement is held out for renewed activity during January and February, especially the latter month, when it is expected that the car shops, malleable works and axle manufacturers will begin operations. Quotations are given as follows:

Southern Coke, No. 1		
Southern Coke, No. 2	9.25 @	
Southern Coke, No. 3	8.75 @	9.00
Obio Soft Stone Coal, No. 1	14.50 @	15.00
Ohio Soft Stone Coal, No. 2	14.00 @	14.50
Lake Superior Coke, No. 1		12.50
Lake Superior Coke, No. 2		11.50
Hanging Rock Charcoal, No. 1.,		16.53
Hanging Rock Charcoal, No. 2		16.00
Tennessee Charcoal, No. 1		13.50
Tennessee Charcoal, No. 2		12.60
standard Southern Car Wheel	15.75	16.75
Lake Superior Car Wheel and		
Malloable	14.25 @	14.75

The tenor of our reports of the St. Louis Pig Iron market is that, as usual at this period of the year, consumers are allowing their stocks to run down and are holding off shipments until after the turn of the year. Prices continue very low and No. 2 Foundry, which is the favorite grade among foundries, is quoted at \$9.75, f.o.b. cara St. Louis. There is some talk of No. 2 Foundry having been sold at \$9.50, but investigation has proved this to be incorrect. Furnacemen are looking for a revival of business early in the new year, and the general indications point to an increased consumption very shortly. It is doubtful if prices can go any lower, and it is pretty generally agreed that a few sales of good round lots would go far toward advancing the present low quotations. Sales during the week have been extremely quiet. We quote as follows for cash, f.o.b. cara St. Louis:

 Southern Coke, No. 1 Foundry
 \$10.50
 \$3.75

 Southern Coke, No. 2 Foundry
 9.75
 10.00

 Southern Coke, No. 3 Foundry
 9.25
 9.50

 Southern Car Wheel
 16.50
 17.00

#### Metal Market.

Pig Tin.—Early in the week the market reacted from its condition of depression, wholesale prices advancing about 0.70\$\psi\$ from the lowest point touched last week. Later, however, prices dropped again about \$\psi\$ \$\psi\$ lb on London decline and the pressure of heavy supplies, while the market lost its temporary firmness. Trade and consumptive buying has meanwhile gone on in about the usual way, with prices for small lots unchanged from last week's quotatiors—namely, a basis of \$15\psi\$ \$\phi\$ 16\$ for Straits Pig.

Copper.—The market has assumed a tone of firmness during the week, which is in strong contrast to its condition last week. Sales agents do not confirm reports of a producers' agreement, neither do they report unusually heavy business. In fact, the sudden and sharp turn in the market is somewhat mysterious, but rather suggestive of manipulation to clinch orders for next year's delivery at good rates. It is suggestive also that speculation in futures in the London market has been unusually lively during the week. The periodical December rumors of large sales for 1895 delivery have circulation, as have also the rumors of reduction in output. For small lots of Lake Ingots from store the price quoted is 10½¢ ? lb.

Plg Lead.—No change of importance has taken place during the week. As far as can be ascertained, the wholesale buying has been commonplace and merely fair in the aggregate amount, while a small fraction will measure the fluctuations in prices. Jobbing business has been tame, and the market closes acft in tone. American Pig in small quantities fetches about 3\$\psi\$ \$\phi\$ 3\psi\$ \$\psi\$ lb.

Lead Pipe and Sheet.—The demand for Manufactured Lead has shown no

improvement. It continues very meager in this section. No better trade is looked for by dealers in plumbers' supplies this side of New Year's Day. Prices are satisfactorily maintained, however, on the list basis of 5\partial \phi\$ for Pipe and 6\partial \phi\$ for Sheet, with 20 \partial \phi\$ discount.

Spelter.—Transactions in this quarter have been on a very moderate scale. Low prices have been made on Western brands, but failed to enliven the buying interest, and sales, both wholesale and retail, have been of the narrowest. Jobbers quote Western in small parcels at  $4 \notin \emptyset$   $4 \nmid \ell \mid \ell$  lb

Antimony.—Aside from ordinary jobbing business little has been done. Small lots of Cookson's rule 9\forall \phi, and of Hallett's at 8\phi \forall \text{?} lb.

Nickel.—Prices remain at about 35¢ @ 40¢, according to quantity and delivery.

Tin Plate.—The approach of the holidays and the dullness which usually settles on the market toward the close of the year have been felt in full force during the past week. On both sides of the Atlantic the manufacturers are still engaged in the wage scale controversy with their workmen. The shutting down of so many Welsh and American works will soon be felt in a reduction in stocks; and this is the only consideration which appears to keep the market from tumbling to pleces. As it is, values have experienced a further decline, and Plates can be bought here cheaper than ever. Still no class of buyers seems to have sufficient confidence to purchase except as imperative wants dictate. The except as imperative wants dictate. The can makers, who in ordinary times are accustomed to place their contracts for January and February dellveries considerably earlier than the present time, are still holding off, apparently with the expectation of being able to secure their material at still cheaper rates than those now ruling. How this can be it is hard to say, for authorities declare that there can be no profit in the prices at which ordinary Cokes are at the moment being offered in this market. Genment being offered in this market. Generally the condition of business is flat, tame and disappointing. The only movement is in small retail purchases. Nothing is doing in spot or forward deliveries in larger lots. Prices are, if anything, rather weaker, and concessions from quoted rates are not uncom-

A special London cable dispatch to The Iron Age, dated December 11, reports on the British Tin Plate market as follows: Tin Plate market is without improvement. Only a moderate business is passing, chiefly at 9/6 for ordinary Cokes. Makers are willing to book well forward at present rates. Buyers seem uncertain and unwilling to commit themselves. There is more inquiry for Ternes for forward delivery, chiefly at 18/ for double boxes. Buyers' offers on Siemens Plates are three half-pence lower. Stock at shipping port, about 250,000 boxes. Sellera' quotations at Swansea are as follows:

Bessemer Cokes, IC 14 x 20. 9/8 @ 9/9 Siemens Cokes, IC 14 x 20. 9/9 @ 10/ J. B. steel Cokes, IC 14 x 20. 18/6 @ 21/ Charcoals, IC 14 x 20. 10/6 @ 12/6

A letter of December 5 from one of the most well-informed Tin Plate brokers on the other side to a leading importing house refers to the Tin Plate market in England as very slow and unsatisfactory, although not quite as demoralized as published reports would ndicate. The inquiry from America

was considerably smaller and prices a shade lower on that date, while limits received from this country were too low to admit of any chance of working them. He mentions that full weight BV grade 14 x 20 can be freely had at 9 73, and that 9/6 would be taken for these Plates in many cases.

#### Chicago Report.

Scrap.—The supply of Old Material is now running low, as compared with stocks ordinarily carried. Dealers quote their buying prices as follows, Chicago delivery:

Per net ton.	Per th
No. 1 Wrought Scrap \$7.00	:
Machinery Cast 6 00	
Matleable Cast 5.50	
Stove Plate (free of burnt) 4.25	
Burnt Iron and Grate Bars 3.00	
Sheet Iron and Hoops 2.00	
Plow Steel and Breaking	
Stock	
No. 2, such as Shovels, Hoes,	
&c 3.00	
Old Boilers—whole (tron) 3.00	
(Iron)—cut in single	
Sheets and Rings 6.00	
Old Gas-Pipe and Boiler	
Tubes 5.00	
Cast Borings 3.00	
Turnings 4.00	
Horseshoes	
Copper Bottoms	6 ¢
Copper Clips and Heavy	7 3
Heavy Brass	- 6 €
Light Brass	3 ¢
Pipe Lead	2160
Tea Lead	2 ¢
Zinc	2140
Rubber	4120
***************************************	

Anthracite.—The reduction in prices has not stimulated business, which continues very quiet Carload lots of 12 net tons, or over, are quoted as follows:

	ŀ	igg, Sto.
	Grate.	aud Ch.
Chicago, Ill	\$4.75	<b>\$</b> 5 00
Milwaukee, Wis	4.75	5.00
Kansas City, Mo	7.95	8.20
Council Bluffs, Iowa	7.95	8.20
Lincoln, Neb	8 10	8,35
Sioux City, Iowa	7.95	8.20
Aberdeen, S. Dak	8.00	8,25
Dubuque, Iowa	6.05	6.30
Madison, Wis	6.25	6.50
St. Paul, Minn	7.25	7.50
Burlington, lowa	6.25	6.50
Des Moines, Iowa	7.75	7.95
	6.05	6.30
Davenport, Iowa	7.95	8.20
St. Joseph, Mo	7.95	8,20
Leavenworth, Kan	7.95	8.20
Omaha, Neb	1,00	0,20

Colorado Anthracite.

COLORADO FUEL & 1RON COMPANY.

\$8.00
8.00
8.00
10.00
8.85

THE STANDARD BRASS WORKS, formerly of 39 Harvard street, Cambridge-port, Mass., have moved to 330 and 332 Main atreet, where they occupy a new foundry with facilities for handling a larger volume of business.

A commination of fire clay sewer pipe manufacturers is reported to have been effected, representing a capital of about \$2,000,000. The combination will have 25 firms in it, and will be named the Central Sewer Pipe Company, with offices at Pittsburgh, Pa. Frank H. Coleman, of the United States Fire Clay Company and the Ohio Sewer Pipe Company of New Liabon, has been elected president of the Central Company, and T. F. Anderson, of Knowles, Taylor & Anderson of East Liverpool, general manager.

#### CONDITION OF THE

### Hardware Trade.

WITH the near approach of the holiday season and the holiday season and the close of the year there is a perceptible falling off in the volume of business. especially as many of the travelers have returned home, and trade lacks the stimulus which their activity would give it. The smaller class of purchases are therefore limited to goods required for early sale and the replenishing of the assortment of fancy articles which are in demand during the holidays. Besides this class of business, however, there is a good deal of activity on the part of the larger buyers who are negotiating in regard to orders are negotiating in regard to orders for future delivery, a matter which calls for careful consideration and scrutiny of the market, and the fore-casting, if possible, of the course of business during the next few months. There is in many lines a disposition to defer purchases, buyers thinking that possibly the bottom has not yet been touched, and there being a very general impression that prices will hereafter rule low, as compared with those which have been current during past years. There has been little change in the tone of the market during the past the tone of the market during the past week, and prices on many goods con-tinue weak and somewhat irregular. In the course of the year there have been so many declines in price on staple Hardware, and especially in Heavy Hardware, that the annual in-ventory will show—it is to be appreventory will show—it is to be appre-hended—a shrinkage in the value of the stock which will, unless it is judicionsly turned over, tend to curtail the profits of the year, which has been, in any event, to most merchants a somewhat unsatisfactory one. The improved condition of things throughout the country and the hopeful views which are justified in regard to the future course of business are, however, encouraging features of the situation

Advices from Chicago.—The Shelf Hardware trade is more active than jobbers had expected. December seems to be unlike the usual closing month of the year. The fact that inventory season is approaching appears to have no effect upon the volume of business. A remarkable steadiness is shown in the character of the orders which have been received for several weeks past. It is gratifying to observe this feature of the trade. Considerable satisfaction is expressed with the careful buying of the past year or more, which has brought about such a condition of affairs. Retailers stocks are replemshed so frequently and so steadily that jobbers are like wise enabled to keep their stocks in much better condition. Instead of fluctuations in demand which cause stocks of some articles to be greatly increased and then held on hand for some time, all stocks have been kept under good control. The Tinware trade has been especially good, running very much longer thau usual in December. One case is noted in which orders received for the first week in December were larger than for any similar period in seven or eight years. Individual orders in this line are now running larger and calling for more whole packages. The mild weather of the past two or three weeks has kept up the demand for Roofing Plates. Retailers are also beginning to call for Bright Plates. The Heavy Hardware trade, on the contrary, is suffering considerably from the mild weather, as this is the season when all classes of winter goods such as Sleigh Shoes, Toe Calk Steel, &c., should be moving freely. The stocks laid in some time ago are lying in jobbers'

warehouses almost untouched. Meanwhile other classes of their trade are quiet, owing to the approach of the close of the year. Collections in all branches of the Hardware trade are reported better than usual.

#### Notes on Prices.

Wire Nalls.—There continues to be a very good degree of activity in the Wire Nail market, many orders being received, and the volume of shipments large considering the time of year. There is also a good deal of negotiation in regard to orders for delivery within the next few months, and some large purchases have been made. Buyers are, however, showing a disposition to held off a little. Prices continue without change on the basis referred to in our last report. Small lots from store in New York are held at \$1.20 to \$1.25, though these figures are sometimes shaded.

Adrices from Chicago.—Inquiries continue to be received for deliveries for the first quarter of 1895, and some factories have taken a great deal of business of this character. Others, however, are holding back in the hope that they may get better prices later, or if they fail in this they propose to diminish their output. Prices continue about the same as previously reported. Jobbers are quoting small lots from stock at \$1.10 or \$1.05 for shipment from factory, or \$1 for carload lots shipped direct from factory.

Cut Nails.—The Cut Nail market is rather sluggish and the volume of business moderate. Small lots from store are held at 95 cents to \$1.

Advices from Chicago.—The demand is confined entirely to small lots. Manufacturers express satisfaction with orders of this character, asserting that they would not be willing to name present prices for long delivery, owing to the fear that raw materials may advance materially in value. Some shading has recently taken place in Barrel Nails, but in a general way prices are unchanged. Small lots from stock are selling at \$i.

Barb Wire.—The Barb Wire market is not in an entirely satisfactory condition, notwithstanding the fact that the volume of business is large and most of the mills have booked orders which will occupy them for some time. The price is, however, somewhat uneven and represented by the quotation of \$1.85 to \$1.90 for Four Point Galvanized in carload lots at mill, but these figures are shaded more or less freely.

Advices from Chicago.—The contracts taken by manufacturers during the past week, so far as can be learned, were not so large or numerous as during the weeks immediately preceding, but the output of the factorics appears to be pretty well covered now for the winter months. Carload lots have latterly been moving quite freely. An encouraging feature of this trade is the orders to begin shipping which are already being received. Jobbers report a fairly good demand for mixed carloads and small lots from stock. Prices appear to be well sustained and are not as irregular as those prevailing in the Wire Nail trade. Jobbers quote Gaivanized at \$2 for carload shipments from factory, \$2.05 for shipments of small lots from factory, and \$2.10 for small lots from stocks. The plain Wire market is disturbed this week by extremely low prices being quoted on contracts which

are now coming up. Business is large, and the trade would be in good condition if it were not for the sharp competition for business.

Tacks.—The prices agreed upon by the leading manufacturers are pretty well maintained, but the market is somewhat uneven owing to the activity of outside competition.

Shovels and Spades.—The market for Shovels and Spades is not in a very settled or satisfactory condition, prices being low and rather uneven and weak.

Suction and Force Pump. — The Mosely Folding Bath Tub Company, 161 South Canal street, Chicago, Ill., are manufacturing the Mosely Suction and Force Pump, which was illustrated in The Metal Worker, November 24. The Pump is sold to the trade at \$8.50, list, subject to a discount of 33½ per cent.

Glass.-The variation in the prices made hy different manufacturers of American Window Glass is the principal feature of the Glass market at the present time. It is reported that some manufacturers have been carrying on a war among themselves, doing what injury to rivals they could, and that this state of affairs is largely responsible for the disturbance in prices which has existed for several weeks. Manufacturers are evidently tired of this unprefitable warfare, as it is understood that Indiana Glass makers have called a meeting for next week, at which time the disturbing conditions of the Glass trade will be discussed, and an effort will be made to advance prices. It is difficult to quote any fixed price, but Pittsburgh advices name from 88 to 88 and 20 per cent. discount for single and double strength Glass, as an average quotation for car lots at factory, except when unusually large quantities are wanted, in which cases better than 90 per cent. discount has been offered. Glass from New York jobbing houses is sold at from 85 and 10 and 5 to 85 and 20 per cent. discount for single and double strength. Trade is reported as not being up to that of last month.

White Lead.—At a recent meeting of the White Lead corroders with the efficials of the National Lead Company the agreement was reached to make the regular price of White Lead in lots of 500 fb and over, 5½¢, less ½¢ discount; lots of less than 500 fb, 5½¢ and ¼¢ discount. It is stated that the new prices, which are practically ½¢ a pound lower than the list put into effect January 1, 1894, have been practically current for some time. Their present action is taken to stop further cutting and furnish a basis of prices. On the new basis White Lead will sell cheaper than ever in the history of trade.

Old Rags, Paper, &c.—Demand is fair and prices practically unchanged. The following quotations represent the current rates paid by dealers in the city:

y		
No. 1 White Rags		3 @ 31/4
No. 2 White Rags		21/ @ 21/4
Mixed Rags		% @ 1 6
Biues and 3ds	Þ	11/8 (0) 11/8 \$
Hard Sized White Shavings	Ъ	21/8 @ 21/4
No.1 White Book Snavings #	Īδ	1% @ 21/84
No.2 White Book Shavings	Ъ	1 @ 11/80
Light Book Shavings	IP	%
No. 1 Mixed Shavings	L	78 @ 1 ¢
No. 2 Mixed Shavings *	D	%@ %¢
No. 1 Printed Books	D	1 @ 1%¢
Ordinary Mixed Books #	D	36 0 %¢
Newspapers	В	
No. 1 Manila Paper	В	% @ 1 #
No. 2 Manila Paper	D	% @ 3/4
Bogus Paper	Ъ	360
Common Paper	D	14 @ 3.52
Straw Chips	D	
Binders' Clippings	D	
Dillingia Cuphingo.		

	Jute Butts	Th	11/4	@ 1	8/4
Ì	No. 1 Jute Bagging	D	1	@ 1	340
	Mixed Bagging	D	3/	@ 1	
١	No. 2 Bagging	Th	16	@	360
	Hemp Twine	70	2	@ 2	160
1	Manila Rope	1h	2	@ 2	140
	manua rope	7	11/	Ø 1	8/4
١	Jute Rope	TIP.	123	(A)	734
ı	Mixed Rope	TD	%	Œ	784

Old Metals — Business moderate and rates substantially unchanged. New York dealers' purchasing prices are about as follows:

Heavy Copper 15 7 #
Light and Tinned Copper Ib 61/4
Heavy Brass 1b 484
Light Brass 10 33%
The 28/6
Lead
Tea Lead 15 23/4
Zinc 10 21/4
No. 1 Pewter 11 #
No. 2 Pewter 15 5 #
Wenneht Regan Iron, W gross
ton
Heavy Cast Scrap # gross
ton 7.50 @ 8.50
Stove Plate Scrap 38 gross ton 5.00
DEGREE FIRE SCIENCE TO RECORD TO SE
Burnt Iron gross ton 3.00

Old Rubber.—Dealers' purchasing prices, New York delivery, are about as follows:

Car Springs, ton lots, # 1b.	••••	0	\$0.031/6
Rubber Shoes, carloads, de- livered at factory, \$16		_	

#### Trade Notes.

THE LEONARD CLEANABLE REFRIGERATOR is the subject of an announcement elsewhere by the Grand Rapids Refrigerator Company, Grand Rapids, Mich. The chief features of this refrigerator are alluded to in the advertisement and a view shows its general appearance. Particular emphasis is laid upon the price feature.

THE prominent announcement elsewhere in this issue of the Michigan Vapor Stove Company, Grand Rapids, Mich., will be read with interest by all who handle vapor stoves.

JUDGE BOOKSTAVER of the Court of Common Pieas has appointed Joseph Walker, Jr., receiver for the firm of Nichols & Granger, 582-588 Hudson street, New York City, manufacturers of gas tubing. The action is taken on account of disagreement between the partners. It is stated that the firm is perfectly solvent.

THE PENN YAN MFG. COMPANY, Penn Yan, N. Y., have been incorporated with a capital of \$10,000. The company will manufacture Washing Machines and novelties.

Hanson & Decker, stove dealers and tinsmiths, Gloversville, N. Y., have sold out their business to Miller & Russell of Blotsburg, Pa. The new firm will take possession January 1, and will continue business at the old stand on Church street.

A. S Kino, for the past year representing the Jones Hollow Ware Company and the Auburn Hollow Ware Company of Baltimore, will, after January 1, be identified with Matthai, Ingram & Co., Baltimore, Md., in connection with their New England trade.

Under date of December 4 the Ette & Henger Mfg. Company, St. Louis, Mo., announce that they have changed the name of their corporation to the Pleuger & Henger Mfg. Company. It is stated that this involves no change in the management of the company and that they are making the same line of goods as heretofore. The company are prepared to fill orders promptly, and cali attention especially to the quality and finish of their manufactures.

#### Improved Grooving Machine.

Jacob Brombacher's Sons, 30 Cliff street, New York, are marketing an improved groover for workers in tin, sheet iron and other metals, as here shown in Figs. 1 and 2. The work is grooved by moving the frame back and forth over the seam by means of the crank, the operator standing at the right hand end of the machine, in front of it. The upper and lower arms are made of bars of steel each 2\frac{4}{2} and 3 x \frac{1}{2} inches respectively, insuring great rigidity. The gear and rack teeth are all cut, affording a smooth movement. The seaming roll in the frame is followed by a flattening roll, thus completing the operation in one transit. A stop is placed on the top bar to prevent the frame running off the rack. The

a floor area of 9.330,000 square fect; a water front of 14,600 feet, or 24 miles; hulkheads of 25,913 feet; 35 covered piers of 1,160,000 square feet; 9 open piers of 17,896 square feet; storage yards with an aggregate area of 40 acres, and 16 grain elevators of a daily capacity of 1,000,000 bushels and a storage capacity of 20,000,000 bushels. The net earnings of these properties last year were about \$1,500,000, and by consolidating them, it is calculated that the amount could be increased to \$2,000,000.

It appears from the columns of our contemporary Die Natur that a German chemist has made the discovery of a new compound body, which is said to possess the peculiar quality of solidifying under the action of heat, and to

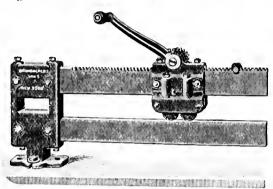


Fig. 1.-Improved Grooring Machine.

groover is so constructed that when lengths of 20 inches are to be grooved the lower bar can be built up with pieces of metal, regulated by an underneath set screw in the standard, so as to neutralize the inevitable apringing of the bar at the extreme end of the groover. The groover is made in 20 and 30 inch sizes. In the 30-inch size the ordinary mechanism is provided for locking the upper and lower bars together. In grooving short lengths of material by setting the lower bar at a proper point, as indicated in Fig. 2, the workman is not compelled to change his position, even though the work is

again revert to the liquid state at a temperature below 32° F. To this substance the name of crostase has been given, and it is stated to be obtained by mixing equal parts of phenol, camphor and saporine, with the addition of a smaller proportion of the essence of terebenthine. It is supposed that up to the present time no body possesses this remarkable property of liquefying when cold and solidifying when hot. It is true that certain substances, such as albumen, for example, harden when exposed to heat, but once they have attained this condition they cannot be made to resume the liquid state, al-

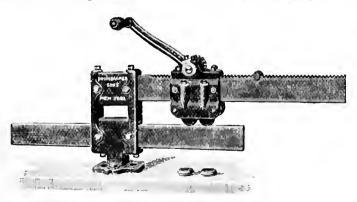


Fig. 2.-Showing Adjustment of Lower Bar.

but a fraction of the groover's capacity. Three seaming rolls of varying widths, together with a flattening roll, accompany each machine.

An effort is being made to organize a big warehouse trust to control all of the warehouses, elevators and dock facilities in Brooklyn. Although the plans of the promoters are not yet consummated, it is believed that the scheme will be carried out. The plant of the new company would, it is said, consist of 264 brick warehouses, having

though they may be subjected to exceedingly low temperatures.

The death of Ferdinand de Lesaepa, the great promoter, removes one of the most picturesque and unique figures. Twenty-five years ago M. de Lesaepa was at the hight of his glory, when his great work, the Sutz Canal, was opened to commerce. Since that time his great name and reputation have been dragged in the mire through his unfortunate connection with the dis-

astrous Panama Canal scheme. Few more pathetic terminations to a great career have been recorded in history.

#### CONTENTS.

001(1111(11))	
Editorials : PAG	Э В .
Heating and Ventilation	29
Business Prestige	29
Adding a Profit	29
Economical Waste	29
The Letter Box-	
Some Tin Plate Inquiries	30
Insufficient Air Supply	30
Distinguishing Iron and Steel	30
Water Front or Pipe Coil. Hius	31
Seamans' Automatic Water Heater	31
Flow of Water Through Pipe	31
Cleaning Solder	31
Is It a Leak 7	31
The Tiu Shop—	
Pattern for Offset, Oblong to Oblong.	
Illustrated.,	32
New Seamless Milk Can Neek. Illus	34
The Crosby Power Press. Illustrated	85
Steam and Hot Water-	
Combination Heating.—11. Illus	36
The Winthrop Hot Water Heater. Ill.	37
All Hight and Volunteer Boilers. Illus.	38
Dispute About Radiator Connections.	
Illustrated	39
Heating a Harber Shop	39
Heating Notes	39
The Retail Store—	
Pressed Steel Fence Posts. Illustrated.	40
The American Refrigerator. Illus	40
Walk and Street Scraper. Illustrated	41
The Adams & Westlake Hose Coupler.	
Illustrated	41
L. & G. Improved Milk Can Stock. Ill	42
Domestic Gas Light Heater and Illumi-	,
nator. Illustrated	42
Aluminum Coffee Pot	42
Roofing and Cornice— The Penn Iron Roofing & Corrugating	
Company	43
Flashings	43
Progress in Gas Making	43
Test of Fire Proof Construction	43
Tin Plates— The Tin Plate Wages Dispute	44
The Beard Furnace Tile. Illustrated	44
Scrap	44
The South Wales Tin Plate Situation	45
New Publications Warehouse Facilities in Large Cities	45
Plumbing and Gas Fitting	
Sanitation and Smoke Prevention in	
Chicago	46
How Swiped Joint Becomes a Shriner	46
—His Miraculous Escape  Montreal Master Plumbers	47
Brass Pumps. Illustrated	47
Traps and Vents	47
Drawback Rates.—II	48 48
Bimetallie Telephone Lines Heating and Plumbing-New Work and	•0
Contracts	49
Stove Trade Notea—	
Norman II. Galusha	50 50
Illinois Freight Rates	50
An East Side Stove Dealer. Illus	51
The Michigan Vapor Stove Company	51
German Tile Ranges	52
Odd Plates	53 53
Frade Report—	-54
The Iron Market	54
Metal Market	54
Chicago Report Condition of the Hardware Trade	55 55
Notes on Prices	56
Trade Notes	16
mproved Grooving Machine	57
Metal and Miscellaneous Prices	58
Abor Exchange— Help Wanted	60
Situations Wanted	t0

## Metal and Miscellaneous Prices.

### CHICAGO, DECEMBER 13, 1894.

Tin-	Irondale, AAA, tissue paper packed:
Straits pigs16¢	1C, full weight, 14 x 20\$5.75 IX, full weight, 14 x 20
Imported Tin Plates-	Irondale A A:
Charcoal Plates.—Bright.	IC, full weight, 14 x 20,
guaranteed Plates command special prices, according to quality.	Irondale A:
Per box.	iC, full weight, 14 x 20 5.00
IC, 10 x 14 6 \$5.75 IC, 12 x 12 6 5.75 IC, 14 x 20 6 5.75	Irondale B:
IC. 20 x 28 (3 11.50	1C, 100 lbs , 14 x 20
Calland and IX, 10 x 14	
IX. 14 x 20	Irondale C, IC, 14 x 20, 100 lbs 4.50 10, 14 x 20, full weight
DC, 124, x 17 69 5 50 1	Coke Plates.—Bright.
(IC, 10 x 14	
Allaway Grade, [C. 20 x 28@ 11.0)	R. W. & B., IC, 14 x 20, 108 lbs
1X, 14 x 20 7.00 1X, 20 x 28 11.00	Old Hundred, IC, 20 x 28, 200 lbs 9.50
Cohe Plates—Bright.	Roofing Plates.
Per box.	Palm, IC, 20 x 28
Peeel Ooke-10, 10x14.14x20.\$4.75 @ 5.00	Empire, IC, 20 x 28
IC, 14x20, 100 b. 1.50 @ 4.75 10 x 20 @ 7.25 20 x 28 @ 10.00	Hickory, 1C, 20 x 28
20 x 28 @10.00	Alaska (heavily coated), IC, 20 x 25@ 13.50
X, 10x 14, 14 x 20	Alaska IX, 20 x 28@ 16.70 8pecial, IC, 20 x 28@ 13.50
Charcoal Plates,-Terne.	" 1X, 20 x 28 @ 10.50 Ningara, 1C, 20 x 28 9 50
Assentand Pister command specia	Paim, 10, 20 x 28.
Prices, according to quelity.	1 Westingtenand.
20 x 28 Sp.50 210.00	1C, 14 x 20 5.121/ <sub>4</sub> 1C, 20 x 28
$17.20 \pm 28.12.00 \pm 12.50$	Kenwood; 1C, 20 x 28
Wercester Brand and equal.— 1C. 14 x 20 6 5.25 1C, 20 x 28 10 00 &10.50	Furniston:
12, 14 x 20., 0.25 25 0.50	IC, 20 x 28 9.75
20 x 28 12.00 @13.00	IC, 20 x 28
Tin Boiler Plates.	Each extra cross \$1.59.
Per box of Per box of 100 sheets. 112 sheets.	Challenge, 1C, 20 x 2810.50
X 14 x 28. \$11.75 \$11.25 XX 14 x 28. 13.00 13.75 X, 14 x 31. 13.00 12.59 X, 14 x 31. 13.00 12.59	Juno: IC, 14 x 20
<b>II.</b> 14 <b>X</b> 31 13.00	1C, 20 x 25
Per box of 5d sheets	Illinois, Old Method:
X, 14 x 56 \$12.50	IC, 20 x 28
<b>X</b> , 14 x 80\$29.50 <b>X</b> , 14 x 80	E. L.: IC, 20 x 28
	Jessie:
American Tin Plates	1C, 20 x 28 10.50
Thereoat Plates.—Bright.	Old Process: IC. 14 x 20
Minerva: 1C, 10 x 14, 12 x 12, 14 x 20\$5.3716	IC, 14 x 20. 8.56 IX, 14 x 20. 10.00 IC, 20 x 28. \$17.00 IX, 20 x 28. 20.00
IC, 10 x 14, 12 x 12, 14 x 20\$5,374e IX, 10 x 14, 12 x 12, 11 x 20.6,624e	
Florence.— IC. 10 x 14, 12 x 12, 14 x 20, \$5.75	H. B. L., Old Style:
IO, 10 x 14, 12 x 12, 14 x 20, \$5.75 IX, 10 x 14, 12 x 12, 14 x 20, 7.50	1C, 14 x 20
Palma	1C, 20 x 2814.00
IO, 10 x 14, 12 x 12, 14 x 20 6.25 IX, 10 x 14, 12 x 12, 14 x 20 8.00	Continuous Roofing Tin.
Usual extrat or other crosses and 20 x 28 double these prices.	Merchant's Tandemper roll, 2.7.

_ 1	VIBER 10, 100 II	
1	Sheet Iron-	
5	Black.	2
0	Common	
-1	t mandage Doffred	
5	Nos. 10 to 16.	1
5	17 to 20 D 2 2-10# 2 9-10#	
-	25 and 2d 2 h 2 4-10	
юΙ	25 and 20 * b 2 4 10 6 8 1 10 6 27 * b 2 5 10 6 8 2 10 6	
~	Russia, Planished, &c.	
}	·	
5	Genuine Russia, all numbers186 net.	
- 1	Genuine Russia, all numbers18¢ net. Patent Planisbed* b A, 10%¢; B, 8%¢ dis. 6%	
50 75	Craig's Pollshed Sheet Steel8160	
۱°	Galvanized.	ĺ
- 1	Juniata, or first qualitydis.75%10%	l
- 1	_	l
75	Copper-	ı
66	101/4@11 4	ı
50	Lake	ŀ
ı		١
00	Sheet and Bolt.	ĺ
25	Discount on old list (except savance	l
25 75	Sheet and Bolt. Discount on old list (except advance on cold rolled polished holler sizes to 25¢), 26\$.	Ì
56	Copper Bottoms.	l
iö l		1
50	Discount on old list, 253. Seamless Brass and Copper Tubes.	l
70 50	Base price, 15%¢, Chicago, with extras	ļ
50 50	Conner Propre and Gilding Tube. 34 9	l
50	Scamicss Brass and Copper Tubes. Base price, 15%, Chicago, with extras according to size Copper, Bronze and Gilding Tube, 3¢ \$ p additional.	l
00	Brazed Brass Tubing. (100 to lots.)	ļ
		l
16 25	(To No. 19 inclusive.)	١
-	Discount, 40%.	l
00	Plain, 34 inch up to 2 inch	ŀ
	Plain, & inch up to 5g inch 38	Ì
75	Plain, % lien up to % inch	١
	Plain, 4 inch up to 5-16 inch65	1
50 10	Plain, 3-16 Inch up to 1 inch 1.00	١
117	Plain, 2 inch up to 3 inch	ı
50	Plain, 3 inch and larger Special.	Į
-	Plain, \$4 inch up to 2 inch	1
	Bronze and copper	l
	Roll and Sheet Brass. (100 to lots.)	١
	Discount, 40%.	1
50	Slab Speiter-	I
		1
00	Western Spolter4¢	
.00	Sheet Zinc-	
	600 D casks\$1,75 300 D casks4,95 Loose sheets5,05	ļ
.50	300 b casks, 5.05	
	Loose succes	
.50 .00	Solder-	
.00	10%@11% Extra Wiplug	
.00	Extra Wiping	•
	The prices of the many other qualities of Solder in the market indicated by private brands vary according to composi-	1
.00 .25	of Solder in the market indicated by pri-	
.25	tion.	
.50		
_ 0	Antimony -	
.75	Hallett's	1

	Lead-
Ë	oft Pig Lead
i	3sr
١,	Block Tin Pipe
1	Wand under. Plain
1	and under, Galv 50%10%10%
j	Boller Tubes list Oct 24 1809 702105
Ì	ly and under, Plain
ľ	1892. 4748 Steel Boller Tubes
ï	Cold Drawn Seamless Steel Tubing
١,	Cast-Iron Soil Pipe— Cast-Iron Soil-Pipe, Tarred: Sizes 8 to 8 inches, inclusive
١,	inches, inclusive dis 702105 Other sizes dis 605
	Leader Pipes-
	Austin's Corrugated
1	Gordon & Gilbert's Corrugated 85% Ritchie's (Gaiv. Iron only) Cor'd 85%
	Ritchie's Spiral Lock Seam, Galv'd 60% Austin's Spiral Ribbed Pipe 65%
ŀ	Leader Pipes— Abendroth's Galv. Spiral Riveted
1	PIDAWS-
	Adjustable
	Furnace Fittings— Discount from Excelsion Steel Fur-
ļ	nace co. a nat
	Perfection\$3.10 square
Ì	Steel Roofing
l	Metallic Shingles— Cushman's
	Merchant & Co.'s Spanish Tiles:
1	Tin\$9.75@\$14.25 square Steel, painted\$9.00 square Drain Pipe—Tile.
1	Droin Pine-Tile
ļ	Discount from list70%
Ì	Deodorized Benzine
I	Brown.
l	Ground in oil, B. Redw B, 644
١	Ground in oil, Brown & B. 634
1	Linseed Oil, Boiled, in obla
١	Mineral Paints
١	Pure White Lead in Oil
ı	Red Lead, American
	Discount from isst
	Sipe's Japan Oll. in bbls. # gal34
	Asphaltum, Trinidad Refined, # ton. \$45
	Tarred Feit, 2 Ply, F roll 108 sq.
	Tarred Felt, S Ply, Wroll of 108 aq.s
	feet

### NEW YORK, DECEMBER 14, 1894.

The following quotations are for small lots.

Aluminum-
No. 1 Aluminum (guaranteed over 98%
pure), in rolling ingots  Bmall lots
100-b lots 2 b, 60¢
Ton lots W D. 58# 1
No. 1 Aluminum (guaranteed to be over 98\$ pure), in ingots for remelting:
8mall lots ₩ ₺, 60¢
100-m lots
No. 2 grade (guaranteed to be over 94%)
pure Aluminum), cast in inguts for re-
melting: 6mail lots * b, 55¢
100-b lots b b, 58¢
Ton lots 1 1 50#
Antimony-
Eallett's B 8 \$
Brass-
Planishednet
Roll and Sheet25@30%
Brass and Copper Tubes
Brazed Brass Tubing-
Brown & Sharpe's Gauge the Standard.
List April 9, 1894. Plain Round Tube. Per D.]
4(-in. up to 2-in
haln, up to sain
41 5
D. 10-10-10 to 7% th
1.00 \$ 16-1n.up to 3(-in
1.50   4 - 1n.up to 8-10-in
Smaller than 14-inSpecial
8 In. and larger
Copperand Bronze Tubing-
84 % B more than brass,

Conductors-
Corrugated, Round or Square-
Galvanized, Locked Joints
Tin
Spiral Riveted-
Galvanized50%
See also Elbows and Shoes; Eave-
Trough Miters; Strainers, Con-
ductor.
Conductor Strainers—See Strainers, Conductor.
Copper— Bottoms, Pits and Flats, 19¢ Wm, net
Bottoms, Pits and Figts., 19¢ \ \mathbb{D}, net   Inact.
Lake10%#
Ansonia Grade Arisona
Planished net
Sheet and Bolt 15¢ W B, net, basis
Tubes - See Seamless Brass
Tubes.
Tubes. Eave Troughs-
Tubes.
Tubes.  Eave Troughs— Lap or Stip Joint, Galvanised60&10% Lap or Stip Joint Terne
Tubes.  Eave Troughs— Lap or Sup Joint, Galvanised60&10% Lap or Sup Joint Terne
Eave Troughs— Lap or Stip Joint, Galvanised60&10% Lap or Stip Joint Terne
Eave Troughs— Lap or Sup Joint, Galvanised60&10% Lap or Stip Joint Terne
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Eave Troughs— Lap or Stip Joint, Galvanized
Tubes.  Eave Troughs— Lap or Stip Joint, Galvanized60&10\$ Lap or Stip Joint Terne
Eave Troughs— Lap or Stip Joint, Galvanised
Tubes.   Eave Troughs

	Elbows and Shoes-	B
	Flat Crimp, Tin	01
	Corrugated .	τ.
Ì	Flat Orimp.  Galvanized	F
	Round or Square.  Tin60% Gelvanized	V
	Iron, Sheet-	
	Common R. G. Cleaned American. American.	
	Nos. 17 to 21 \$ b. 2.35 2.70 Nos. 17 to 21 \$ b. 2.35 2.70 2.80	I.
	American American Nos. 10 to 16. № b. 2.25 . 2.60   Nos. 17 to 21 № b. 2.35 . 2.70   Nos. 22 to 24. № b. 2.36 . 2.80   Nos. 25 and 26. № b. 2.55 . 2.90   No. 27 . № b. 2.05 . 3.00   No. 28 . № b. 2.75 . 3.10	L
	No. 28	õ
	Genuine Russis, accord-	١
	Patent Planished	9
	Galvanised. B. B	1
	Nos. 10 to 16	
	No. 27. No. 28. No. 29. No. 50.	
	Lead- American Pig	
	Bar	

Tib Lined Pipe
Mitres, Eave-Trough-800
Eave-Trough Mitres. Paints, Olis &c
Lend, White, Atlantic and Jewett's.
100 @ 500 Br
Lead, Amn. White, in Oit
Raw, ₩ gal
Spirits Turpentine:
Putty: In barrels and 14 bbis
Boofing Material, &c.: Asphaltum, Trinidad, Refined, 7
ton. \$30.00@\$35.00 Asphaltum, Rock, \$ ton. \$14.00 Coal Tar Felt, 1 Ply, \$ b. 2 Coal Tar Felt, 2 Ply, \$ roll 108 sq. ft. \$1,434
Cont Tar Felt, 3 Ply, # roll 108 sq. ft.
Roofing Pitch & ppl

## THE METAL WORKER.

#### NEW YORK AND CHICAGO.

#### Saturday, December 22, 1894.

DAVID WILLIAMS,

PUBLISHER

#### BUSINESS OFFICES:

NEW YORK96-102 Reade Street.	NEW
PHILADELPHIA220 South Fourth Street.	PHIL
BOSTON146 Franklin Street.	
PITTSBURGH Room 509 Hamilton Building.	
CHICAGO 59 Dearborn Street, cor. Randolph.	
CINCINNATI Rooms 22-24 Pickering Building.	CINC
ST. LOUIS Bank of Commerce Building.	
CLEVELAND812 The Cuyahoga.	CLE

BRITISH AGENCY: The Ironmonger, 42 Cannon street, London, England.

Volume XLI1 ......... No. 25. Index to Reading Matter ..... Page 58.

#### Merry Christmas.

We cannot let this season go by without sending a Christmas greeting to our friends who have been so kind to us in many ways during the year, and to whom we wish all manner of happiness and prosperity. Trade may have been bad, profits may have fallen below the expectations of the early months, and many disappointments have perhaps been met, but we hope all displeasing memories will be laid aside for the week at least, and that the season of good cheer will make its influence felt; bringing the tired ones a time of rest, the worried ones a time of peace, and all a vacation for a little while from the auxieties and turmoil of the year.

#### Adding a Profit.

How shall a profit be calculated on a heating job after the cost has been estimated? Shall it simply be a lump addition, or should some other method be used? After a season when the shop has been busy and several men have been employed the employer often wears a long face because the profits expected fail to materialize. Has he considered rent, interest, insurance, light, heat, power, boy, horse and salesmen in the cost of every bid he has made, besides a generous allowance for the unexpected which is said to always happen? If he has not, it is quite probable that they have eaten up what he added for a profit. They must be counted in the cost, then a percentage added on for a profit, in preference to a lump which is largely guesswork. If a percentage plan is followed there is less probability of losing some jobs by the price being too high, and what is worse, losing money on others by the price being too low. The percentage to be put on will require some judgment in determining the amount, as a larger business will reduce the amount each job will have to bear of the fixed a dry summer and iail, oread will be considerably dearer next year and the epoch of low prices will pass away through the operation of one of the inexplicable processes of nature. to be put on will require some judg-

expenses. In some cases it may be good business policy to reduce the profit to keep the shop going, but they are rare; in other cases to raise the profit, so as to lose the work of a poor payer. Without the profit, however satisfactory the work and however popular the house, business failure must sooner or later be the outcome.

#### Economical Waste.

A very striking illustration of what the low cost of manufactures of iron and steel really means is furnished by a remark incidentally made by William Garrett of Joliet, the famous inventor of the rod mill which hears his name. In a lecture at Joliet he stated that " wire nails are sold so cheaply that it is estimated that if a carpenter drops a nail it is cheaper to let it lie than to consume the carpenter's time to lift and use it, and it is claimed by good authority that one keg out of five is never used but goes to waste." We have had the curiosity to do some figuring on the proposition made. Assuming that it takes a carpenter 10 seconds to pick up a nail which he has dropped, and that his time is worth 30 cents an hour, the recovery of the nail would cost 0.083 cent. There are 200 sixpenny nails in a pound, which is worth at 90 cents base and 65-cent average per keg 1.55 cents per pound. This would make the money value of the individual nail 0.0077 cent. Or in other words it would not pay to pick up ten nails, if it took ten seconds of time worth 30 cents an hour in which to do it.

#### Agricultural Conditions.

Reports from the great agricultural States are disquieting. The weather has been excessively dry throughout the entire fall, and winter wheat has suffered severely. It is stated that the season is the dryest in twenty years, and the outlook for next year is filling agriculturists with gloom. The sections that suffered most seriously from drouth last summer are still enclonded with misfortune. It seemed bad enough that crops should fail and the feeding of cattle be a matter of difficulty, but it is now necessary in many localities to drive stock for miles to pools or sloughs for a little water. The price of grain has kept remarkably low in view of the conditions prevailing, there heing almost a famine in a huge section of the West, but it is now predicted by careful observers free from speculative influence that consumption will so rapidly exceed receipts from farmers' stocks as to cause a steady appreciation in value. Should a dry winter succeed a dry summer and fall, bread will be

#### Fraudulent Shipments.

One feature of the l'atterson bill for the amendment of the Interstate Commerce Law, says The Iron Age, has escaped the general attention among business men which it deserves, because the provisions permitting pooling were seized upon as far reaching. The particular amendment alluded to reads as follows:

Section 10.-That any person, and any officer or agent of any corporation or com-pany, and any member of any firm or partnership, who shall deliver property for transportation to any common carrier, subject to the provisions of this act, or any person, corporation, company, firm or partnership for whom as consignor or consignee any such carrier shall transport property, who shall, knowingly and will-fully, by false billing, false classification, false weighing, false report of weight, false representation of the contents of any package, or by any other misrepresentation, deceit or device, obtain or seek to obtain transportation for such property at less than the regular rates then established and in force on the line of transportation of such carrier, shall be deemed guilty of a fraud, which is hereby declared to be a mis-demeanor, and shall, upon conviction thereof in any court of the United States of competent jurisdiction within the district in which such offense was committed, be subject for each offense to a fine of not more than \$5000.

The framers of this amendment aimed at a very serious abuse. The representative in charge of the bill, Mr. Patterson, made the statement that statistics show that in transporting freight from the cities of New York. Boston, Philadelphia and Baltimore alone to the city of Chicago, there were in a single year as many as 173,000 instances of false shipment. Mr. Patterson does not give his anthority for this stupendous figure, nor does he indicate in what manner his statishe indicate in what manner his statis-tician conducted his investigation. In the absence of data on these points the figures will be received with reserve Still it is the general impression among business men that frauds of this character are widespread, and that they are not alone connived at by the railroads, but are actually instigated in some cases. The fierce competition among the carriers has encouraged the practice and has made it impossible to practice and has made it impossible to bring false shippers to justice. The railroads have not dared to prosecute them, because they were afraid of losing the business. It is argued that if pooling be allowed under proper restrictions and under fair supervision, the railroads would soon learn to put a stop to the practices referred to. It would not take many convictions to would not take many convictions to purity our industries and our com-merce of this crying evil, and probably many of those who have been forced into the system of underbilling, or of false classification, would be the first to appland when it is abolished. Every honest merchant and manufacturer will be content when he is able to feel sure that no rival is undermining his trade because he is successfully cheating the railroads or is in collusion with

## THE LETTER BOX.

### The Compliments of the Season.

From A CONTRIBUTOR. -I have never seen anything in the Letter Box of the purely social character, nevertheless I am constrained to send my best wishes at this season for its continued prosperity and for the continued prosperity of all who are interested in it as contributors or readers. The Letter Box is an old and highly esteemed friend to many, and moreover it is composed of us. In it we do our acts of benevolence by sharing our good things and helping one another, which is always a source of pleasant reflection. To realize these best wishes, in which I am sure all the readers join me, we have only to continue to send our inquiries to it and to send our solution to such problems as we have mastered. I have made in-quiries occasionally and have one or two more that will be sent during the winter, for I want our mutual efforts to bring about what I desire. We shall all have more leisure in the near future, and, instead of rusting out, a personal benefit will be derived by an active interest in our department of The Metal Worker, which also has our best wishes, for without it we would have no opportunity to exchange the fruits of our experience.

Note.—We heartily return the compliments of "A Contributor," and invite the same free use of the Letter Box in the coming year as in the past. During 1894 the Letter Box has been remarkably prolific of good information on widely different subjects, and the contributors have our thanks as well as our beat wishes for the coming year.

#### Rusting of a Tin Roof.

From R. H. C., Grafton, 1ll.—I would like to receive some informatiou regarding the rusting of a tin roof. About two years ago we put a tin roof on the north side of a building, using IC terne plate. The building had a shingle roof, and the tin was put on with the usual seam, being laid over the old shingles. The main roof is one-third pitch, and the adjoining part one-fourth pitch, all in one roof. The part of roof having one-third pitch is all rusted out at the bottom, while the adjoining part, having one-fourth pitch, is as good as ever. The same kind of tin was used for the entire roof, and the upper surface was well painted, but no paint was used on the under side. How long should a tin roof last when IC tin is used and properly painted?

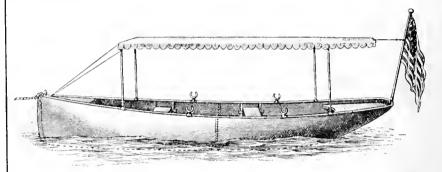
Note.—It is not considered a good plan to lay a tin roof over old shingles, on account of the rough aurface afforded for the tin to rest upon. While this may not account for the rusting of the tin, it may be that the shingles were somewhat leaky and allowed the moisture from below to strike against the tin, become condensed, and thus cause the tin to rust out. It would be

difficult to state how long a tin roof should last if well painted, as it must be evident that the tin could not corrode when thoroughly protected from moieture and gases by paint.

#### Sheet Metal Rowboat,

From F. F. FIELD, Lakewood, R. I.— I am constructing a round bottom rowboat of No 24 galvanized iron, and

I then trimmed the sheets to the proper shape, for they had drawn from the top edge. When stretched I removed them from the form and riveted them together where they had been lapped by 2 inches. I then got a wrought iron keel  $\frac{1}{4} \times 2$  inches in section and had it bent to fit the form, and punched two lines of holes in it  $1\frac{\pi}{4}$  inches between centers, and had it galvanized and riveted it between the sheets. Previous to putting on the gunwale I raised the



Sheet Metal Rowboat .- Fig. 1.- Finished Boat.

perhaps an account of its building would be of interest to some of the readers of The Metal Worker. I first got two sticks of timber 24 inches square and 15 feet long and marked out the lines of the boat, 14 feet long and 42 inches wide amidships and 28 inches wide at the stern. I then cut out the shape of the boat in the two pieces of timber, which gave me a form to work on. I next took four sheets of

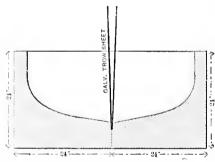


Fig. 2.—Section through Wooden Form.

No. 24 galvanized iron. 30 x 84 inches, stood them up edgewise between the forms, as in Fig. 2, with two sheets opposite to each other and lapped by about 2 inches, but not riveted. The bow ends of the sheets projected forward of the form 1½ inches. Having secured the two parts of the form together by means of clamps, to avoid them apringing apart, I bent two sheets to the right and two sheets to the left of the form as far as possible by hand power. Then two pieces of board  $\frac{\pi}{4}$  x 2 inches wide by 14 feet long, sprung to the shape of the form, were secured by clamps, leaving the metal between the two wood forms. Then taking a large round faced mallet I stretched the sheets to fit the form, which practically gave me the shell of the boat made of sheet iron.

section in the stern, which was a piece destined to tie the sheets together above the water line, and riveted and soldered it in place. For the gunwale I got 32 feet of \$\frac{3}\$ inch galvanized iron piping and had a slot sawed in it lengthwise, putting in \$\frac{3}{4}\$ tees where I wanted the rowlocks. I bent the pipe to the shape of the form, with the slot on the underside, and forced it over the top edge of the boat, riveting it with 12 inches between centers. Air chambers were provided in the bow and stern under the seats large enough to float the boat full of water. It is surprising to see how strong and rigid the boat is without any ribs whatever. I send a sketch, Fig. 1, that will show the appearance of the boat after it was finished, with the position of the seam.

#### Water Fails to Run Promptly.

From E. F., Dalton, Mass—I wish to ask through The Metal Worker the best plan for running water into a two-story house where the supply has a fall of but 25 feet. In running the pipe I have carried it to the second floor and then turned down with a circle of wide sweep to the sink on the lower floor. Before making the circular sweep I placed a faucet on the second floor a few feet from the highest point. The water does not come from this faucet for a few minutes after opening it. In explanation, however, I would say that the water runs on the lower floor all the time. How can I remedy it so that the water will come when the faucet is opened?

Note.—We would be glad to have our readers use The Metal Worker for giving their views on this subject. It would seem that the rise to the second floor of a house would diminish the head

so that there would be little pressure exerted at the faucet on the upper floor, which would account for the water running slowly, but not for its refusing to run for a few minutes. The open end of the pipe on the lower floor would act like a siphon and cause a better flow of water there than on the upper floor, and it is possible that this siphonic action would draw the water by the faucet for a time previous to its running out of the faucet on the upper floor.

#### Pressure Bursts Old Work.

From Subscriber.-I am having a great deal of trouble in my city with the plumbing in the houses of my customers. I have had a shop here but two years, and as none of my jobs are giving trouble I am called upon to rem edy the troubles in other work. I have found a very good system and character of work, but as light weight lead pipe and low pressure fixtures have been used, bursts and leaks are frequent. This is due to a new system of water works having recently been opened to the city carrying a pressure capable of supplying water to residences in the highest sections of the city. Where the pressure was formerly about 40 pounds, it is now always 75 pounds and at night higher. Is there any way of overcoming this trouble without putting in a new job of heavy material?

Answer. - The case presented is not an unusual one, and a very common method of overcoming the trouble is to have a tank for supplying the system at the top of the house. A sufficiently strong pipe is then run from the street main to the tank, with a ball cock at the end to shut off the supply when the tank is full. The pressure, however, can readily be reduced to the strength of the system by using any one of sev eral water pressure regulators on the market. By attaching one to the service pipe at the place where it enters the building and setting it at a pressure that will give a good flow of water from the highest fixtures in the building the trouble will be overcome. When a high pressure is put on the city mains, as in case of a fire, a very severe strain is often put on a plumbing system and as a result considerable repairing is necessary. With a pressure regulator set at 30 pounds the pressure on the mains may rise to over 100 pounds without affecting the house pressure or bringing any strain on its fixtures. If any of our readers have any other plan to recommend we shall be glad to hear from them.

#### Insufficent Air Supply.

From S., St. Louis.—Having read the letter of "A. II." in The Metal Worker, December 15, I would say that it is usual to have a cold air box three-quarters or at least two thirds the area of the heating pipes, and it may be that the cold air box was not of sufficient capacity to supply the pipes. Again, the cold air box may have been made wholly or in part of metal, and so placed that the air in it became heated, either from the warm air in the basement, the smoke pipe, or both, so the movement of air was retarded. A

remedy for this defect could have been found by running the box in such a manner that the air would be delivered to the furnace at its natural temperature. It would appear that the heating pipes were of ample size, if of sufficient number, to remove all the hot air from the furnace, unless the furnace was constructed in such a manner that there was not sufficient space for the air to psss through. The construction of some furnaces is defective in not having sufficiently large oponings through the radiator for the easy passage of the heated air. The area of the cold air box was 360 square inches, while the combined area of the 14 and 10 inch returns are only 232.47 square inches. Supposing the cold air box to have been of suitable size, it would appear the returns are not of sufficient capacity. For a remedy, there should be a suthcient space inside the casing for the air to pass up freely. It would appear that the supply of air was restricted in some manner, thus preventing the rooms above from receiving their proper supply. As each room is provided with a ventilator, and there are three grates on the two tloors, the warm air may escape before it mingles with the air in the rooms, thus preventing the house from becoming properly heated.

#### Heating from Kitchen Boiler.

From C. A. M, Hoboken, N J.—My wife calling my attention to the fact that the side connection to the boiler leaked again made me search for a remedy. I use a malleable iron water back in myrange so as to he sure of its strength being equal to the pressure where I am located. The water back made so much hot water that the boiler was always noisy, and the steam made caused the lead pipe to be overheated, and water hammer resulted by the steam condensing where the coupling reduced the size of the waterway and eventually made the leak. In doing hot air furnace work my attention had been attracted to the method of heating a radiator from a coil of pipe in the fire chamber by means of hot water circulation. I concluded that the surplus heat over what was re-quired in the boiler must be disposed of by some means, and decided to put a 60-foot radiator in the room above the kitchen and connect it with the boiler. I described my intention to a plumber, who discouraged the notion as being impracticable. I said, how-ever, that I would get all the material and would like him to do the work, as I do no pipe work either in lead or iron. I had him run a 1-inch brass pipe from the water back to the side of the boiler, and think this arrangement will stand, even in summer, when the radiator is not in use. The brass coupling at the top of the boiler for hot water was taken out and a 1-inch nipple was put in its place with a tee on it. A 4 inch connection is taken from the side of the tee to supply the house fixtures. From the top of the tee a 11 inch pipe runs up to the radiator, and a 1 inch pipe runs back from the radiator and connects with the pipe from the boiler to the water back. An angle valve is placed on the pipe to the radiator, and an air valve is placed at the top of the radiator. The room in which the radiator is located is 12 x 17 feet in size, with a ceiling 10 feet high. I know that this job is not piped just as an expert would lay it out so far as sizes of the pipes are concerned, but it works satisfactorily in every respect, and the boiler is no longer noisy.

Making the Discount.

BY EPBRAIM SMOOTH.

There is nothing that pleases a wholesale dealer more than to have his customers make the discount. This refers to the special discounts given for eash payments and is true though a reduction in the profit on the sale is one of the results. A case in which the discount was made recently, however, while very clever, has brought no comfort to the wholesaler. Two concerns whose wares are used by the same class of trade without conflict of interests have their office and salesroom together. A man came in one morning and asked to see the line of goods that occupies the greater portion of the showroom. salesman sold him quite a bill, for which he paid cash, showing a business eard from a business house in a nearby town, and as he had taken an interest in the construction, management and proper setting of the goods he gave the impression of a live dealer. He asked more questions than usual of a pertinent character and showed intelligence and enterprise in preparing to do a larger business in the line of goods being investigated, so an extra discount given him as an incentive to continue his dealings. While he was talking with the salesman the goods of the other eoneern were being shown to another buyer and attracted his attention. He was introduced to the nanager by the salesman and again his intelligence and interest secured him the discount, and paying his bill he stated he would send the local express for the goods the next day, which he did. In praising his intelligence to a third party the man whose card was presented heard of it and said he had never been in the place and knew nothing of the transaction. never had any use for such goods, as his work was not in that line. It was clearly evident that some one had impersonated him profitably, but as the bills had been paid he could not see where he had suffered. The impostor had made the discount with two bright business men and good salesmen. Efforts to secure trade prices by outsiders are not unusual but are seldom successful, and those in the trade are often unable to make the discount because of the long credit they ask for.

The Chester (Pa.), gas and water companies and the steam heating company at that place are said to be having a great deal of trouble from the waste electricity of the local traction company, which causes electrolysis, to the destruction of their pipes. Leaks are of every day occurrence. At the lower station of the steam heating company it is sverred that a considerable current of electricity can be taken from their pipes, being carried in from the street.

The adverse  $\epsilon$  ffect of the recent business depression as regards the embarkation of eapital in new enterprises is strikingly illustrated in the annual report of the Secretary of State of Ohio, just published. It shows that the capitalization of new corporations organized in the year 1894 was only \$79,760,300, or less than one third as much as those which began business in the previous year, the aggregate capital of which was \$267,481,500.

The city of San Antonio, Texas, willi expend \$500,000 on a new sewerage system.

## STEAM AND HOT WATER.

Buildings.

Plumbing Inspector Dunn having been requested by the Board of Health of Kingston, N. Y., to report some practical means of obtaining better ventilation in the school rooms, presented a report in which, after stating that to obtain the best ventilation the buildinga must be arranged for it when built, he makes the following recommenda-

In regard to the heating and ventilation I would recommend that the buildings he heated by an indirect system of steam. The air to be fresh forced by the means of a fan, through a channel or conduit with an area carrying at least 30 cubic feet of air per person per minute-the room to have equivalent exhaust of foul air—thence through a room or box containing pipes or radiators with a heating surface sufficient to supply the amount of heat required for each room, and deliver the pure warm air in rooms through flues and registers, so arranged that the same may be easily controlled, registers to be larger than the duct carrying the air to avold a strong current. There are many methods or systems of heating and ventilation. There is no one that is, under any and all circum-There is no stances, superior to every other. Any building which has a heating apparatus designed to be run in the best manner and requiring thorough and constant attention, will be more or less of a failure. To make a proper design for ventilation it is necessary to know or to assume: The number of persons who are to inhabit the building; the fresh air that should be allowed to each person (this is put down by some authors as (this is put down by some authors as high as 35 cubic feet per person per minute); the quantity of air necessary to provide for the vitiation of the air by gas or other lights. The air required for the vitiation by gas lights is given by Schumann as 1800 cubic feet per hour for each cubic foot of gas burned. As each burner may be taken to burn about 4 cubic feet of gas per hour, then each light would require 7200 cubic feet per hour. The leakage of air into a building is considerable. The more leakage there is the less area there will be required in the fresh air duct. In the very best built houses there is always some leakage. The fresh air duct should not be taken under the basement floor, but it should be kept above the ground and brought along the basement ceiling until it reaches the proper point. It is now generally admitted that no system of ventilation is complete that does not provide at the same time for the warming of the incoming air, and that the warming of our public buildings must form a part of any ventilation scheme; that, in short, in a well regulated system the ventilation and warming must be included in one scheme. It is quite true that any scheme of mechanical ventilation is more complicated than schemes of natural or so called automatic ventilation, but it is safer and more complete. To say that a natural scheme of ventilation is uninterruptedly at work the year round is, to say the least, very mislead-

Heating and Plumbing School | ing. It may be true that the atmosphere is always in motion, but then this motion may be so small at times as to cause no movement of air at all out of the buildings, a state of affairs well known to all those who have to rely on this kind of ventilation.

Now about the plumbing and drainage of the buildings, would advice that the fixtures be placed in well lighted and well ventilated apartments, in main building, or in a separate building attached to main building, so as said apartments may be warmed to avoid the danger of taking cold, as now, by pupils leaving a heated room, sometimes without their extra wraps on, and perhaps with a difference of temperature between the inside and outside atmosphere of from 50° to 70°, also that theplumbing fixtures, well arranged and properly constructed, are sanitary. The style of outdoor closets in most cases employed is not sanitary. The rules defined in the plumbing code of the city would be a fair guide, but I wish to add to said rules that where closets and urinals are used, the stalls and floor be composed of some non-absorbent, such as slate or tile; urinals to be composed of some non-absorbent and non-corrosive matcrial and supplied with flushing tanks.

#### HEATING NOTES.

THE WARDEN of the prison at Hartford, Conn., proposes to erect brick air flues, three on either side of the prison, and by means of a gas jet at the bottom of the shaft produce ventilation, forcing out the bad, heavy air that settles at the bottom of the room. There are 390 cells in this room and without being properly ventilated the air becomes very vitiated. The flues will be 12 x 8 inches in size.

THE KENNEDY VALVE MFG. COM-PANY are nicely fixed in their new quartera at 75 John atreet, New York, and have their sample line of gate valves very neatly arranged. They make a varied line of steam goods and have a special fire hydrant.

THE BUFFALO FORGE COMPANY, Buffalo, N. Y., have secured as representa-tives for the Southern States, the Southern Heating Company, headquarters at Louisville, Ky., who will give particular attention to fan heating and ventilation, handling the well-known Buffalo fans, blowers and exhausters, disk ventilat-ing fans, horizontal and vertical engines, &c.

THE EXETER MACHINE WORKS, Exeter. N. H., have published a reference supplement to their catalogue of Exeter sectional hoilers for power and heating purposes. The letters and references are from users of the Exeter boilers in the New England and middle Atlantic States, and in a prefatory note the publishers state that the list presents but a small portion of the Exeter bollers in use, very many having been sold through agenta without the purchasers' names coming to the manufacturers. These letters speak in flattering terms

of this apparatua, and will be read with interest by those who contemplate using Exeter heaters.

J. S. LINDLEY, Bennington, Vt., contracted to heat the Court House in that city in seven days, and by the aid of his steam fitter, Fred. Butler, he kept his contract, and installed the plant and started fire before the time expired.

THE ASSIGNED PLANT of the Robinson Company, located at Bellwood, Pa, was disposed of last Saturday to D. L. Wray and Ira Wentzell, of Bellwood, and C. M. Robinson, of Philadelphia, for \$4000. The new firm owns the right to manufacture a heating apparatus known as the Popular Hot Water Fire Place.

DURING the fore part of the week. Hart & Crouse, Utica, entertained W. M. Mackay of their New York house, and a general review of their business for the year in the ateam and hot water department aeems to have left an agreeable impression.

C. M. Norcom of the Mackay Valve Company, 66 James street, Newark, N. J., is a frequent visitor among the heating contractors in the vicinity of New York. Radiator valves of all kinds are embraced in their line.

W. A. Russell, 89 Centre atreet, New York, is proud of the array of sample Niagara radiatora he is now able to make. He announces that the indirect radiators, as well as the direct ra-diators made by the Niagara Radlator Company, Buffalo, N. Y., have proven very popular and satisfactory, and that orders can be filled promptly.

DISBROW & Co., Harrisburg, Ps., are using large quantities of the radiator valves made by the Detroit Lubricator Company, and for which W. A. Russell is the New York representative, with office and a well supplied stockroom at 89 Centre street.

With the Ideal sectional cast iron hoiler, the Electric pips construction hoiler and the ateam goods of the Van Auken Specialty Company, Richard D. Jackson, 89 Centre atreet, New York, has much to interest the heating trade.

E. R. Pierce, manager of the Boston office of the American Radlator Company, was a visitor at the New York office, at 92 Centre atreet, this week. In addition to the usual courteous greet-ing received at this busy office, a Merry Christmas and the heat wishes for the coming year are extended to all visitors.

THE UNITED STATES HEATER COMPANY, Detroit, Mich., have received all of the plans for the erection of a manufacturing plant on Campbell avenue, between Lauderdale avenue and the Wabash Railroad. One building is now in course of construction and will be 50 x 235 feet, 70 feet of which is two stories, the remainder one story. It will contain the machine shop, ware-house and offices. The foundry, which house and offices. The foundry, which is not to be built for the present, will be 100 x 175 feet.

#### Estimate Blanks.

The Illinois Heating Company of Chicago have observed the publication | bill submit the following:

of aeveral estimate sheets in these columus, and being of the opinion that they have a form which exactly fills the

#### PSTIMATE SHEEF

ILLINOIS HEATING COMPANY, CHICAGO.		
Owner's Name and Address		
Architect's Name and Address		
Kind and Location of Bldg		
Estimate made by		
Date		
		-
Boiler		
Boiler Trimmings		
Brick Work		
Cartage on Boiler		
Direct Radiation		
Ind. Radiation		
Low Radiation-Extra		
Rad. Valves, Ells, Air Cocks and Floor Plates-Water		
Rad, Valves, Air Cocks and Floor Plates-Steam		
Drain and Feed Cock		
Pipe and Fittings		
Expansion Tank		
Smoke Pipe		
Thermometer Alt. Gauge Safety Valve		
Registers for Indirect		
Regulator		
Pipe Covering		
Lumber, Tin and Paper for Carpenter Work		
Bronze and Paint		
Car Fare		
Freight		
Cartage		
Board	• • • • • • • • • • • • • • • • • • • •	• • • • • •
Labor, Pipe Fitters		
" Carpenter		
" Painter		
" Placing Radiators in Building		
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#### Improvements In Greenhouse Heating.

The following extracts are from a paper read before the New York Florists' Club on December 10 by Samuel Burns of Thomas W. Weathered's Sons, and a member of the American Society of Heating and Ventilating Engineers:

#### Historical.

Webster's definition of the word "improvement" is as follows: "Advancement, a making or growing better, a valuable addition, excellence added, or a change for the better." Therefore, any improvements in greenhouse heating mean that we ought to have something better than we had before. This does not give us the degree of excellence or betterment; it only provides that there must be a change in the right direction. Taking this view of the case it would seem to me that the only true method of finding out what improvements have been made is to contrast the various systems of heating used at the present time with those used in the past.

The florist who has had experience with nothing but flues, cannot fully ap-preclate the value of hot water or steam heating, neither can those who have never run a flue begin to realize what fun they lost by not having attended to four or five old fashloned flues on a very coid night. To form a correct opinion on any subject it is necessary to carefully study both sides of the question, and even after this is done the case is sometimes so evenly balanced that it is very difficult to render a just decision. I do not think we shall in this case be at a loss for a decision, as it is only necessary to go back far enough to convince the most skeptical that we have made some improvements in heating greenhouses.

In "Chambers' Encylopedia," we find under the heading of "Greenhouse,"

the following: "The first greenhouse of which there is any record was erected about 1619, hy Solomon De Caus, at

#### DATA SHEET.

ILLINOIS HEATING COMPANY, CHICAGO.							
Owner's Name and Address							
Architect's Name and Address				• • • • • • • • • • • • • • • • • • • •			
Kind and Location of Building							
·Hight of Basement Other	Floors						
Date							

Rooma.	Exposures.	Size and hight of rooms	Cubic	Wali	Wall Glass sq. ft. sq. lt.	sq. It. Glass.	Water radiation,		Steam radiation.		Remarks.
			contents.   sq.	sq. ft.			Diet.	Ind.	Dict.	Ind.	
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Heidelberg, to shelter orange trees. The Chinese, however, are not unacquainted with greenhouses, and it is not known how long this has been the case. Heat was at first supplied when necessary by hot embers put in a hole in the floor, afterward by furnaces in the greenhouse. Flues, steam and hot water pipes are of more recent invention." Under the heading of "Hothouse," the same authority says: "The oldest mode of heating hothouses is by furnaces and flues; the other modes practiced are by steam or hot water, led through the house in tubes."

The only information that I can gather regarding the heating of the greenhouse built by Solomon De Caus is that it was warmed by means of four large furnaces. How these furnaces large furnaces. were constructed or in what manner the heat was conveyed to different parts of the building is simply a matter of conjecture, as history gives us no definite information on this point. However, as this greenhouse was used to shelter over 400 orange trees planted in the ground, it is reasonable to suppose that these furnaces were connected to a system of flues. Taking into consideration the information we have at our dispossl, I do not think we shall be much out of the way if we assume that the first method generally adopted for heating greenhouses was the ordinary furnace and smoke flue. We certainly have good reasons on which to base such a conclusion, for while we find that the Romans understood the circulation of hot water to some extent, they knew more about heating by flues. The Hypocaust was a form of furnace much used by the Romans for the purpose of hesting baths and apartments. The fuel was placed in a chamber under the floor, and the smoke and heated sir were made to circulate around the walls and under the floor by means of hollow tubes or a hollow lining. The full benefit of the fire was thus obtained, in place of a large portion of the heat being allowed to escape as it does in the case of the open fire place. The Romans invariably used this form of furnace for heating their dwelling houses. We also find that the Chinese have for a long time used a very elab-orste system of flues, and by which the floors of rooms are heated by a furnace constructed below, with a moderate expenditure of fuel. We find this mode of heating described in "Philosophical Transactions, 177I," but the date of its introduction does not appear to be known.

There is not the slightest doubt that the smoke flue answered a very useful purpose in the early days of horticulture, and was at one time the most economical way in which the desired result could be obtained. This system of heating had many objections, such as unequal temperature in different parts of the house, as it was necessary to produce an excessive amount of heat at the furnace end in order to obtain any appreciable effect at the extreme end. This invariably produced a dryness in the air, which had to be corrected to a certain degree by putting psns of water on the flue at various points. There was slways great danger of the flue bursting at some point during heavy firing, which would allow the gases to escape and thus destroy many plants. The limited scope of the flue also necessitated a number of fires in large establishments, which was both inconvenient and costly. As floriculture assumed greater proportions, there would naturally he a desire on the part of those engaged in it for some better

method of heating, for notwithstanding our improvements of to-day, we are crying for more.

#### Early Hot Water Heaters.

The origin of the invention of employing hot water for diffusing artificial heat appears to be hid in considerable obscurity. It is not improbable that, like many other discoveries, it has been reproduced at various periods. The same observations may be made regard. ing steam, for in searching through the various books of reference at my disposal I find that although hot water heating has been most generally used for greenhouse work, the application of steam was fully understood long before we had a correct idea of hot water circulation. In a work written by Thos. Tredgold and published in 1824, I find the following: "Col. William Cook first suggested the ides of employing steam as a means of distributing heat in 1745; it has since been applied in various ways, most of which have repeatedly been secured by patents. The first of these was granted to John Hoyle, of Halifax, England, in 1791, for a method of communicating heat to greenbouses, churches, &c. His plan consisted in conveying steam in pipes or tubes into or through the place to be warmed, the pipes being first raised to their highest elevation and then descending with a gentle declivity to a cistern for the condensed steam, the supply of water to the boiler to be regulated by a ball cock." This scarcely differs from Col. Cook's plan, which had been known 46 years before, and what better can you do at the present time? I find also in the same work the following in an article on forcing houses and stoves, written by Mr. Neill. He says: "Of recent improvements in this branch of gardening, however, the most important is the use of steam for communicating the artificial heat, in place of depending as formerly on the passage of amoke and heated air through flues. Steam is employed on the largest scale by Messrs. Loddiges, at Hackney, and I have nowhere seen stove plants in greater perfection and vigor. They have now (1824) used steam about five years and with success."

It was somewhere about this time that hot water circulation began to be better understood, and the moment it was steam took a back seat for greenhouse purposes, and remained so until about eight or ten years ago, when it came up again almost in the same form as that described by Tredgold. Hot water heating seems to have been used in France in the year 1777 by M. Bonnemain, and was employed by him for hatching chickens by artificial hest. About the year 1817, the Marquia De Chabannes introduced a similar apparatus into England for heating a conservatory and also heating some rooms in a private house by pipes leading from the kitchen boiler. In 1822 Mr. Bacon, a gentleman of fortune, intro duced the use of hot water into his forcing houses, using for the purpose a single pipe of large dismeter, communicating with the boiler; and by giving a slight elevation to the pipes from the horizontal line he was thus enabled to produce a circulation of the water, the hot water passing slowly along the upper part of the pipe and the colder water returning to the boiler along the lower part of the same pipe. The circulation in this apparatus was very imperfect, and Mr. Atkinson, an architect, almost immediately afterward suggested the addition of a second pipe

to bring back the colder water to the boiler, and thus at once the apparatus assumed the form which it has ever since retained. By this alteration the apparatus was brought very nearly to the same form as that contrived by M. Bonnemain more than 40 years before, the principal difference being that M. Bonnemain used only very small pipes of gun barrel size, while Mr. Atkinson used pipes of 4 or 5 inches diameter.

The boilers used in the early stage of hot water heating were very simple in construction, in fact nothing more than an open vessel somewhat similar to a common wash boiler. I saw one of these in 1874 at Mr. Durfee's greenhouse in Fall River, Mass. This apparatus consisted of an open copper botler having a flow pipe leading out near the top and a return pipe entering the bottom. The pipes were 4 inches in diameter, also made of copper, and carrried around the greenhouse to an expansion tank. Of course, with this form of boiler the pipes would necessarily have to be carried on a dead level, otherwise the water would over-This being the case and finding that the pipes must in many cases be carried on different levels would naturally suggest to the inventive genius of the age the close topped boiler such asis used at the present time.

#### Principles of Heating.

The improvements that we enjoy both in steam and hot water for heating greenhouses cannot be said to be in methods, but are due rather to a bet-ter knowledge of the laws which govern their application. There is no art, however humble, in which a knowledge of the laws that regulate matters does not open a wide and extensive field of useful improvement. It is only by a careful study of the principles which govern natural phenomena that we are enabled to profit by their practical ap-plication. Such has been the case with the heating of greenhouses. The day of the brick or tile flue with its dry heat, constant leakage of gas and other disagreeable features is past. No progressive florist would at the present time think for a moment of heating a new greenhouse by this method, and while in many cases he allows the flues to remain in his old houses it is generally because the times do not warrant. him in spending the money necessary for a change.

#### Methods of Heating.

The methods employed for heating our modern greenhouses at the present time are the same as have been previously described—namely, hot water and steam. We have, however, many different ways of applying them to our use. We have the gravity system, the low pressure system, the high pressure system, the overhead system, the combination overhead and under bench system, the up hill system, the down hill system, and, as if these were not enough, there are some manufacturers of boilers who claim to have a special system of their own. All these various systems are described by Chae. Hood in a work entitled "A Practical Treatise on Warming Buildings," published in 1836. After very careful consideration I have arrived at the conclusion that most of these so called new ideas are old ones warmed over.

I will now give you a brief description of the various systems of heating greenhouses, confining myself to those previously mentioned: First, the gravity system, which in hot water refers to all cases where an open tank is used and

the tank not elevated any more than sufficient to fill the pipes with water. In steam the gravity system refers to all cases where the water returns to the boiler by its own specific gravity without the aid of a steam trap. The low pressure system in hot water refers to any case where a tank is attached to the apparatua at a reasonable elevation above the heating pipes. The tank may be closed in this system, but must be supplied with a low pressure safety valve. In ateam this would be the same as the gravity system. The high pressure system is not much used either in steam or water heating, owing to its dangerous qualities. In hot water this system calla for a small coil of pipe built in a furnace, the pipes being continued from the uppper part of the coll and then around the room to be heated, forming a continuous pipe, when again joined to the bottom of the coil, a large pipe being placed at the highest point in the apparatus for expansion. This pipe should have an opening near its lower extremity by which the apparatus is filled with water, the opening being then closed by a screw or valve; the apparatus thus becomes hermetically sealed. The expansion pipe thus left empty is calculated to hold about onetwelfth as much water as the whole of the small pipes, this being necessary to allow for the expansion that takes place in the volume of water when heated. The overhead system refers to those cases in water or steam where the heating pipes are overhead and can be either high or low pressure as desired. The combination system can be either water or steam, and refers to those cases where the flow pipes are carried overhead and the returns carried under the benches and thus back to boiler. The up hill system refers to water and applies to those cases where the water flows up gradually to the end of the greenhouse, which is the highest point, and then returns to boiler. The down hill plan is the reverse of this, the hot water rising at once to the highest point and then dropping back through the greenhouse to the boiler. The gravity system is an old standby and has done good service for us in the past and is still doing good for us to day. The low pressure systems, both steam and hot water, are good according to conditions.

The overhead system is undoubtedly good to keep the snow off the roof, but is very unkind to the plants on lower benches. The combination overhead and under bench system is my favorite system. The up hill and down hill systems both refer to gravity, and are good in their way. In fact, of any system that has been mentioned, the combination overhead and under bench system, either in steam or water, has, in my opinion, thus far proved itself to be

the most effective.

#### Boilers and Piping.

Florists generally are at the present time taking greater interest in the subject of heating than they did some years ago, and as a result of this are better informed on this vital point. The more they study this question and consider it a part of their own business the better will they be enabled to select the best the market afforda in the way of heating apparatus. The number of new boilers that have been manufactured during the past few years for ateam and hot water heating would go to show that the demand is increasing. I was informed a few months ago by the representative of a trade paper in this city that a new style of boiler was placed on the market every 28 days,

making a total of 13 per year; this being the ease, considerable care is required to make a proper selection. These new boilers are always advertised to do something wonderful—in fact, there is no limit to the extravagant assertions that are made in their behalf; they remind me in their general style of aome of the testimonials we read extolling some patent meticine.

The vast amount of fuel used for heating greenhouses and the cost of same forms a very serious item to the florist; therefore, when a boiler manufacturer comes to him and says: "I will guarantee my boiler to do twice as much work as some other boiler and not use more than half the amount of coal, or, my boller will send the water through the pipes so hot that a 2 inch pipe will do as much work as a i inch," he naturally thinks what a blessing this would be, if true. On such representations, however, many boilers are sold, and after a hard winter we find that while we may have been fortunate enough to get a very fair heater, our coal bill has not reduced its proportions in any marked degree; we must, however, admit that whether we use hot water or steam we are to-day better able to determine what will be the result of a certain combination of boiler and piping as applied to greenhouse work. We find also that with the advent of 2-inch pipe many florists have been able to do their own piping, using ordinary laborers for this purpose during the slack part of the season. This will naturally be a saving to them of many dollars in first cost when they compare it with the prices paid to New York mechanics, which must also include railway fares and board while doing the work. While I must commend any business man for trying to reasonably reduce his expenses, and while I feel that it is wise for a florist to fully understand how to put in a system of heating, I would simply say: "Don't attempt the job unless you fully understand what you are going to I can safely say from my experience cf over 26 years that a large majority of the failures in greenhouse heating are due to imperfect systems of piping.

Remember at all times, whether you are putting in hot water or steam, that there is no such phrase as good enough in the business; you must proceed care. fully at all times with the pipe tongs in one hand, the spirit level in the other. Of course an indifferent job of piping may work; were such not the case, I am afraid quite a number of our florists and private gardeners would have to call in the services of an expert. Where the piping is not put in properly the circulation of the water or steam, if it circulates at all, will be slugglah, thus necessitating a greater force at the boiler, which means a greater expenditure of fuel than would be required under proper conditions. In all cases where a florist finds it necessary or advantageous to do his own piping, I should advise him to consult with the parties from whom he purchased the boiler, telling them plainly what he proposes doing, and ask them to furnish a plan of the work; this they will no doubt cheerfully do, for it is to their interest to have the work done well. With our modern boilers and systems of piping the florist can regulate the temperature of various houses to suit the conditions required by different kinds of plants. The improvements in this direction are shown by the magnificent specimens exhibited at our flower shows.

The use of 2-inch pipes in conjunction with a proper arrangement of valves gives us an opportunity for subdivid-

ing the heat such as was not possible with pipes of larger size.

Overhead and Inder Bench Plan.

What I call the combination over head and under bench system has five good points to recommend it; this is where the flow pipes go overhead and the returns under benches, as previously described.

1. It can be adapted to the pressure system by placing a safety valve on the expansion tank, or it can be used with an open tank having no pressure but what is due to the column of water.

2. The heat is carried to the extreme end of the greenhouse in the shortest possible time, and returning under the benches on either side heats back to boiler from the extreme end, which can be kept at the same temperature as the end nearest the boiler.

3. It can be used on the up hill or down hill plan to suit the grade of the greenhouse; this is very convenient when the house grades the wrong way.

4. An increase in the vertical hight of the flow pipes is always followed by increased velocity, therefore we get a quick circulation.

5. Last, but not least, should your greenhouse be situated in a place where you would strike water by digging down from 6 to 8 feet, or should you strike rock, this is the system that will help you out of your difficulty. I have carried out some work on this system where the base of boiler was on a level with the heating pipes and the water had to rise up to the return about 20 inches. We have a little boiler heating our office on this plan where the main return pipe travels about 50 feet along the floor and about 18 inches below return pipe entering boiler; after traveling 50 feet this return pipe drops under the floor about 10 inches, travels between two beams for about 17 feet, then rises up into boiler; in both these cases the circulation is perfect. In greenhouse work I prefer to have a boiler pit at least 18 inches deep, so as to bring the return water back on a level.

I have great faith in this system, for where I have used it the circulation has been very rapid and the results more than I expected.

J. H. COLEMAN, JR., has recently returned from a trip to Boston in the interest of the Humber & Cambridge bollers for the J. H. McLain Company, 69 Centre street, New York.

The report of the trustees of the New York and Brooklyn Bridge for the year ending December 1 shows the receipts for the 12 months to have been \$1,199,-084, of which \$1,111,816 was from the cars and \$87,268 from the carriageway. The total receipts were \$53,823 less than last year. During the year 41,714,000 passengers were carried by the bridge cars, an average of more than 114,000 a day.

A new and formidable competitor to the Standard Oll Company has arisen in Ohio by the combination of three of the largeat independent oil corporations of that State. Two others are also expected to be added to the new combine. The deal, which involves between \$6,000,000 and \$3,000,000, was consummated last week. The new combination will refine by the Berg process, which, it is claimed, removes the sulphur from the Ohio oll, making it superior to the Pennsylvania product.

### THE RETAIL STORE.

#### Store Arrangement.

The accompanying cuts relate to fixtures and methods in use in the Hardware house of Scofield & Co., Sturgeon Bay, Wis., and will consturgeon bay, wis, and will col-vey suggestions which will prob-ably be new to many of our read-ers. The rack for Paint, Varnish and Oil, shown in Fig. 1, has been in use by them for over three years, and has proved very satisfactory. The com-

carriage paint and neatly lettered. pan is used underneath to catch the drip and to hold measures and finnel. One can is used for each Raw and Boiled Oil and Turpentine for small trade, saving many steps to and from the back room or basement for 5 or 10 cents' worth of the goods. Dry Colors are kept at the left of the caus. The bins at the bottom have lift covers similar to grocers' bins, while the small drawers above are used for finer store. One of these is for Guns, another for Stoves, and the one shown in Fig. 5 is used for various lines of goods, such as Bicycles, Refrigerators, &c. The tags are found very convenient, as from the information given

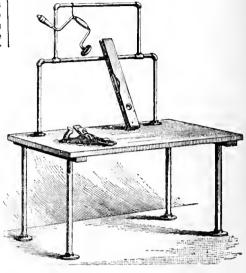


Fig. 2.—Display Stand.

on them a salesman can talk intelligently of what he is selling. On the back of each tag the following is printed with a rubber stamp:

#### **FROM** SCOFIELD & CO., HEAVY AND SHELF HARDWARE, STURGEON BAY,

WISCONSIN. The tags are made of linen, so that they do not come off the goods.

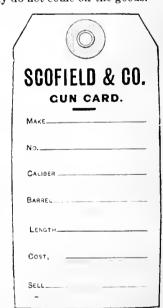


Fig. 3.—Gun Tag.

Another interesting feature in this establishment is a system of electric

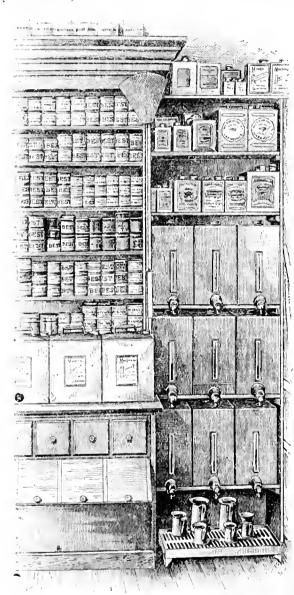


Fig. 1.-Paint, Varnish and Oil Case.

pany refer to the arrangement as a great improvement on keeping the goods in cans, papers and boxes, in which case the contents dry up and evaporate, or spill and get mixed, besides being inconvenient to get at. The Varnish and Oil cans-were made in the company's shop by their workmen, of good heavy tin, using Perfection fancets, 3-inch screw caps and glass cream car gauges soldered in front, so that the contents of the cans may be seen at a glance. The cans are 9 inches wide, 12 inches deep and 17 inches high. They are painted with green Colors. Above the Oil cans Varnishes are kept in original packages. The case is an extension of the shelving and is located at the rear of the store room.

room.

The display stand in Fig. 2 is used in one of the show windows for exhibiting tools and other small goods, the illustration representing the stand as it would appear to a person on the sidewalk. It is made largely of gas pipe and fittings, with a board platform resting on the lower standards. Figs. 3, 4 and 5 represent price tags used in several departments of the

used in several departments of the | bells, which are used to good purpose.

A push button is located near the center of the shelving on one side of the store, so that in case of a rush of customers, employees from the shop, basement or warehouse are called as they are wanted, each answering to a certain number of rings. Push but-

> SCOFIELD & CO. STOVE CARD. No. Cost. STOVE ONLY, \$ \_\_\_\_ WITH FURNITURE, \$\_\_\_\_ No. Pcs. FURNITURE .... SIZE OF OVEN Size of FireBox \_\_\_\_

Fig. 4.-Stove Tag.

tons are also placed in the office and at the cashier's desk, and if the clerks are busy in another part of the store the entrance of a customer is au-nounced by the cashier pushing a bntton.

The whole establishment evidences the care which has been given to its



Fig. 5.-Price Tag.

arrangement, and in all departments an excellent system is followed, secur-ing the convenient accommodation and attractive display of a large and varied

#### A Unique Window Display.

During a presidential campaign an ingenious Hardware merchant of St. Louis arranged a window display, Louis arranged a window display, which is represented in the accompanying illustration. A board back of suitable size was covered with black material, and Tools, Chain, &c., were fastened upon it with good effect. Calipers, Dividers and Auger Bits were selected as best suited for the purpose, while Jack Chain

artistically festooned tormed the whiskers. The face attracted much many comattention and drew forth many com-plimentary remarks. The exhibit is referred to by our correspondent as an

#### Kerosene Oil Can.

Ohio Lantern Company, Tiffin, Ohio, are manufacturing a novel oil can, as here shown, which is intended princi-



A Unique Window Display.

effective and successful window dis-

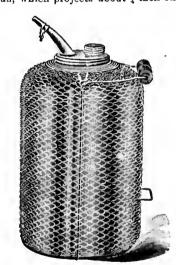
#### Hero Double Action Ice Cream Freezer.

The cut herewith shows a new ice cream freezer which Clement & Dunbar, 1129 Beach street, Philadelphia, are putting on the market as an addition to their line. The freezer is similar in construction to their well-known Home freezer, the exception being that it has freezer, the exception being that it has a double action, one turn of the crank making an equal rotation of can and beater. The gearings are entirely covered, the cover being easily detached from the gear frame, as it is fastened by two bolta secured by two nuts. The gears are of uniform diameter, which makes the speed greater than can be atmakes the speed greater than can be attained by freezera having gears of un-



Hero Double Action Ice Cream Freezer.

equal size. The tub is of white cedar, bound with galvanized flat hoops, the lower hoop affording ample protection to the bottom of the tub. All iron parts coming in contact with cream are tinned, and the can is made of heavy tin plate with iron top and bottom. The freezer is made in sizes from 2pally for kerosene. The body is of crystal glass, enabling the user to determine instantly the quantity of oil in the can. The glass is covered with a tight wire netting, woven around the can, which projects about } inch on all



Glass Oil Can with Woven Wire Cushion.

aides, forming an admirable protective cushion. There is a tin disk on the bottom, joined to the wire work, and an iron rod on each side running vertically, to which the bail is sastened. The top, apout, nozzle, &c., are of tin. The cans have a capacity of 1 gallon. W. W. Pryor & Co., 81 Chambera street, New York are the Eastern agents and carry the goods in stock

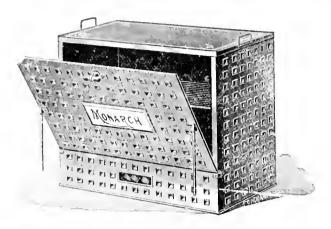
EUGBNE M. AKELEY of Akeley & Wilson, stove dealers in Portland, Maine, died of pneumonla on the morning of December 10. Mr. Akeley went

to Portland when a young man, learned his trade there and, later, engaged in business for himself. For the past five years, however, he was associated with Mr. Wilson, the business being conducted under the style given above.

#### The Monarch Oven.

The Monarch Stove Company of Mansfield, Ohio, have brought out for the season of 1895 an improved form of

is to decrease the time required for freezing cream, and the manufacturers claim that cream can now be frezen in four minutes. To obviate the quality of cream being impaired, which might result from reducing the time of freez-ing, a double set of floats are used on the inside of the beater red, in place of a single set, as heretefore. The manufacturers state that this increases the agitating capacity of the beaters and that it produces fine, smooth cream.



The Monarch Oven for Gas and Vapor Stoves.

even designed for use in connection with gas and vapor atoves. The device is mounted on four casters which run on greeves on the top of the step at the side of the stove, so that the oven can be run back out of the way of the burner when not required for use. This leaves the burner free for other cooking operations and at the same time obviates the necessity of con-atantly lifting the oven on and off the stove. The material employed in the construction of the oven shown in the accompanying illustration is Russia iron, handsomely embossed by a press especially adapted for the purpose. The oven door drops a certain distance and is supported by automatic swinging arms which hold it securely in position and on a level with the bottom of the rack in the oven. The cut which we present shows the door partially open. The ovens are shipped knocked down and nicely packed in atraw hoard boxes, the whole occupying one quarter the space of the ordinary oven. This arrangement enables the dealer to carry an extensive stock without inconven-ience and at the same time have the ovens clean and fresh. The company inform us that the even will also be made with an end drop door similar to the side door. The interior construction of the oven consists of a wide sheet flue at the back which discharges het air at the top, whence it passes over the entire even and escapes through the ventilating heles below the oven door. This system, or principle, it is claimed, insures the baking of biscults within ten minutes from the time of starting the

#### Improved White Mountain Freezer.

The White Mountain Freezer Company, Nashau, N. H., and 105 Chambers street, New York, have introduced im provements in their freezers as presented herewith. The illustration is cut away to show the working parts inside the can. One of the improvements consists of a double self adjusting wood scraping bar, used in connection with the company's duplex dasher. The design of this improved form of scraping bar Other features of the freezer are referred to as follows: A strong water proof tub, bound with heavy galvanized iron heeps, which, it is claimed, do not fall off; gearing completely covered, so that nothing can get between the cogs: cans full size, made of the best quality of charcoal tin plate; beaters of tinned malleable iron; all castings attached to the tub galvanized, and the triple

#### Inventory Taking.

BY E. B. COLE.

Inveicing will seen be the order of the day, and a dirtier, more unpleasant job the Hardwareman rarely has on his hands.

All retail dealers do not take stock annually, and many never take a thorough or proper inventory. If the only feature to be considered were that of knowing the exact amount we have invested in stock and how much profit wo are making each year there would be some excuse for guessing at the stock as long as there are no silent partners to object.

#### GUESSING AT.

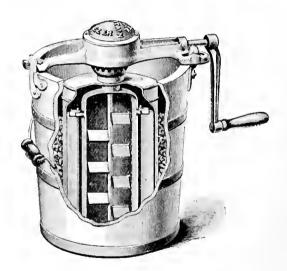
A stock of goods which invoices at about the same figures year after year can be guessed with a surprising degree of accuracy by a competent person thoroughly familiar with the goods in question. But the mere knowledge of the exact amount we have is only one of the considerations in taking the

annual inventory.

First and probably the most important is that of

#### INSURANCE.

He is a shrewd and well posted merchant that knows just how well he is insured. You may never look at your inventory unless you have a fire. There are many ways of adjusting fire losses and figuring the value of merchandise. You can rely on one fact, however-You can rely on one fact, however—that is, the insurance companies will pay no more than they are compelled to by the conditions, and in all cases a thorough inventory as a basis to figure on is the merchant's safeguard, as the burden of proof of the value of stock destroyed lies with him. His inventory and books are the only things left tory and books are the only things left to show in many cases.



Improved White Mountain Freezer.

motion which, it is stated, is peculiar to this freezer.

#### MEMORANDA.

W. A. T. SMITH, whose shop is located in the rear of the New Haven Savings Bank on Orange atreet, New Haven, Conn., has put in no less than 28 of the well known Kelsey furnaces this fall.

CHARLES A. MUTTON, dealer in stoves, ranges and tinware, is about to remove from 29 West Seventh street, Canton, Ohio, to 73 North Market street. Mr. Mutton will take possession of his new quarters on January 1.

The invoice should show the different sizes, qualities and makes of goods so that an outsider could verify the dealer's prices if necessary.

#### UNSALABLE MERCHANDISE.

Another important consideration in invoicing is that of cleaning out slow and unsalable merchandise. We freinvoicing is that of cleaning out slow and unsalable merchandise. We frequently lose sight of goods in a year's business. We find goods in taking stock we could have sold had we known they were in stock, also damaged goods, goods with broken parts and goods with missing parts. The writer once invoiced a stock of pumps and plumbers' supplies that was fully half unsalable because of the lack of parts robbed to supply customers wanting repairs. We regard as the greatest good derived from invoicing the putting of everything in salable condition.

#### SELLING OLD GOODS.

If there are any goods that have remained on our shelves over two years, we put them in a junk pile in our front show window and offer them to our customers at their own prices, calling the attention of every one; that comes

into the store to them.

We had a lot of cut brads and finish pails on hand when the change to wire nails took place, and we could not get rid of them at any price, but by mixing in some 8d, 10d and 20d nails we sold them all as mixed nails at not much below cost. It is better to sell old shop worn unsalable goods at half cost than to carry them year after year, and this method has been so successful that our customers look forward to our annual invoice sale of bargains.

We also find it policy to put in such staple goods as we may be overstocked on at about cost to help clean up the old stayers.

#### A SPECIAL WANT LIST

should be made while invoicing, also a list of things to be done, such as polishing tarnished plated ware, fitting up odd locks with keys and escntcheons, making changes in the display and arrangement of goods, mounting wheelbarrows and grindstones, &c., things you cannot do while invoicing, but can easily attend to during the dull period. When ready to make our spring orders our ready to make our spring orders our want list shows the sizes and varieties of tools and other merchandise required to keep our stock up to our standard completeness. There are a hundred ideas for improving stock and of wants that come to our knowledge when invoicing that should be recorded and carried out. Many large stocks of goods become in a large part unsalable, as the changes in styles and prices go on, from a want of proper consideration of the real advantages to be gained by the annual house cleaning and inventory.

#### ONE WAY OF TAKING STOCK.

We have found in our climate and business conditions that the best time to invoice is the week between Christmas and New Year's. Our new year begins with January 1, and as we never close our store to the trade while invoicing, a dull week is desirable.

We have tried taking the invoice in two books, straightening up the goods, two books, straightening up the goods, invoicing and cleaning out as we go, taking section by section until all are finished, beginning with the goods least likely to be called for by the trade, keeping a list of all invoiced goods sold before the 1st and of all not invoiced after the 1st. We do not know how generally this plan is adopted, but it has so many objections we will not try it again. Its only advantage is that it saves rewriting the invoice. writing the invoice.

#### OBJECTIONS.

One objection is that the invoice books are hard to keep in good shape; that some kinds of goods are frequently listed and priced more than once, as they are found in different parts of the store, making a longer invoice. Another difficulty is in keeping a cortaking of stock generally lasts a week or ten days. Another is that goods are not so apt to be properly listed and specified on the books as they should

#### THE BEST PLAN.

We believe the best plan, and the one we think is usually adopted, is to go through the stock, carefully put-ting all in shape and getting all goods of a kind together, counting and mak-ing lists and attaching to each box or compartment, upon which all sales and changes can be noted up to the time of actual invoice. In this way the stock can all be called off and put on one book in a comparatively short time.

#### ESTIMATING.

In the detail work of invoicing there are many things that require more time than their value will justify, such time than their value will justify, such as counting loose screws in case and loose bolts in rack. We have always estimated these by half or full package, as the case may be. There is such a thing as being "penny wise and pound foolish" in more ways than one, and one is to think you have to one, and one is to think you have to get cost out of old junk stock before you can part with it. Don't keep it. Haul off old iron stuff that lays around and can't be sold and is only

taking up valuable storage room, and

part with it at any price.

Invoicing is for the purpose of separating the salable from the unsal-We all make mistakes in buying and all get overstocked at times.

Taxes, interest and rent act on un-salable stock like unimproved real estate, eating up the original investment and all the profits.

We have never used any special blanks for inventory, but where the invoice is practically made before it is called off, we think some kind of a tag or label, easily attached or removed, large enough to show the contents of a broken box or package, with a space for goods sold before invoice is taken. would be very desirable.

#### Taking Stock.

#### BY C. T. ROSENTHAL.

Stock should be taken at least once each year; in some cases it may be advantageous to take it oftener.

The purpose of taking stock is: 1. To arrive at the present true value

of goods on hand. To have goods thoroughly cleaned

and properly arranged.

3. To take note of stock in general so as to be able to determine which goods or line of goods should be discontinued, to bring forward slow sellers, &c.

#### TIME FOR STOCK-TAKING.

Stock should preferably be taken at a season when there is the smallest amount of goods on hand, or when the employees have the least other work to do; and should coincide with the general or annual closing of books of the firm. The majority of houses do this on or about December 31; if the above mentioned conditions prevail at this time it is well enough, but when this is not the case, the time should be changed, as there is no good reason why the business year should be the same as the calendar year.

#### PREPARATION FOR STOCK-TAKING.

Get goods in order; have damaged articles repaired, order such parts of stoves, machines, &c., as are necessary to complete them, cut the broken glass into regular stock sizes, that there may be no delay when work on stock commences,
TAKING STOCK.

Commence early enough so as to finish on the day selected. Begin with slow selling goods first; this saves work in keeping account of goods sold during stock-taking. Start at a certain place and take the stock right through, proper care being taken to omit nothproper care being taken to omit nothing. If there is enough help available two or more parties, of two or three persons each, may be at work at the same time. Goods should be taken out of the shelves or bins, goods and shelves, &c., well dusted, broken packages opened and contents counted, weighed or measured, as the case may be, and then some one familiar with the goods should call them off to another person to write down.

#### ARRANGEMENTS.

Any kind of ruled paper, say tablets 7 x 10 inches in size, will do for this. Take a tlat box, fasten the tablet on top of it to form a movable desk; also a covered pasteboard box in which to put the sheets of paper when written on. Where there is a "line" of goods take down the smallest size or number first, and follow this up until the largest size or number is reached. Leave two or three blank lines between the different kinds of goods, except where there is a "line" of goods, i. e., goods of the same kind, only different sizes or numbers. Write on one side of the paper only—when a sheet is filled, tear Write on one side of the it off and place it in the pasteboard box and keep on till all the stock is taken.

#### FILING SLIPS.

Take the stock sheets and tear them off at the dotted lines, as shown herewith:

					Inches.
	ndar	đ Belle	nes.		 82
22	+4	4.4			 84
1	6.4	4.4			 36
					 Pounds.
1 Pa	ala A	Invil			70
1 2578	geez				 41
1 .					 
					 Pounds
1 \$0	Ha Re	x Tise	9		 35
20 1	4 (	44			 40
	: 0			 	 50
1					 
Pound	8.				 No
25 F	Casear	Horse	Naul	8	 5
195	4.6	4.6	4.4		 6
375	44	4.4	6.4		 ~
	44	44			 8
550					 

Each slip thus torn off contains only one kind of goods, or a "line" of them: assort these slips according to alphabet, using an indexed file 9 x 12 inches in size or something similar to put the slips in. When all the slips are in, take another indexed file of the same kind, take the A's out of the first file and assort them into the second file alphabetically, according to the second letter, and then copy them into second letter, and then copy them the stock book, strictly according to alphabet, similar to the manner of a dictionary; then take the B's and proced in the same style to the end. The slips containing the same goods, in whatever part of the house they may have been, will always come fogether at the time of copying into the stock book. Use a sampute stock stock book. Use a separate stock book for each invoicing, a book 10 x 12 inches, 200 pages, or more if necessary, is a convenient size.

#### ALPHABETICALLY ARRANGED.

If, in copying, several slips containing the same goods are found, the dif-ferent quantities will be added, and copied into the stock book in the aggregate. Duplicate stock is transferred, as here shown, by changing the quantity—this page indicating stock taken in one place with quantities in the warehouse added:

Standard Rubber Belting.

75	feet	 	116	inches.	2	pty.
64	- 44	 	2	**	~	
21				4.4	3	4.6
63				4.6	4	8.4
193				6.6	3	4.5
57				*1	4	4.4
				6.8	á	8.6
				6.6	Ÿ.	6.
40.0				E 4	ï	6.6
	and $10$			4.6	7	11
	* 1			6.4	4	16
66	feet	 	. 10			
194	41	 	. 12	4.6	4	14
55	- 11	 	14	1 6	4	1.4
		 			-	

#### Exc. Rubber Hose.

27	feet 1	inch.	$\frac{3}{2} P_{ii}^{ly}$
	and 69 feet 8		3 44
50	feet	44	3 44
	feel	8.6	4

PRICING.

Pricing the stock book should be done carefully by a competent person, and the aim should be to arrive at the present lowest market prices, not what the goods have cost. Proper deductions should be made for defective and unsalable goods

Stove fixtures should be taken at a reduction, say 5 to 10 per cent., from prices of former inventory, to compensate for wear and tear.

Each page of the stock book should

be added separate, so that if a correction has to be made, the page in ques-tion only has to be changed, while if the amount is forwarded from page to page, the corrections would have to be made on quite a number of pages.

Enter the amounts of all the pages at the end of the stock book and add them—this is the cost of the goods at the place of shipment. Next deter-mine the per cent, of cost of laying goods down in the store in the following manner :

FREIGHT, DRAYAGE AND BOXING.

Find total amount of goods bought during the year; next total amount paid for freight, drayage and boxing during the same period, and this will give the per cent. of expense of laying down the goods in the house, which rate should be added to the inventory.

During stock-taking, account must be kept of goods sold after they are wri? ten down, and the cost price or approximate thereof of the goods thus sold should be deducted from total amount of inventory, and the remainder is the value of the goods on band.

#### GENERAL REMARKS.

After the inventory is taken the same should be carefully gone over. Goods that have been on hand a long time should be marked down, and the sale of them pushed, so as to get rid of them. Note should also be made of such goods as have proved unsatisfactory, and means devised to make them more profitable, or to discard them more profitable, or to discard them altogether. Goods that have proved profitable might have consideration with a view of enlarging stock, variety and sale of same.

The writer is aware that the system of arranging the stock book in alphabetical order is not practiced generally, and will grant that there is more work involved in doing it. This additional work, however, is a small item, considering the following advantages:

No need of index for stock book. Goods more easily found in book Less liability of goods being omitted

or taken twice.

The goods taken may be in a good many different places in the house—in the stock book they are all together in the aggregate.

More ease in comparing stocks taken at different times.

Easier to price (if a price book is

kept).

If annual sales book is kept, saves half the time of entering stock on

hand. Neater and more orderly appearance of stock book.

#### Improved Freezer Can and Hoop.

The cuts here shown represent improvements in the manufacture of ice cream freezers, introduced by North Brothers Mfg. Company, Philadelphia, for whom John II. Graham & Co., 113 Chambers street, New York, are agents. In Fig. 1 is shown a can, with a bottom made of heavy sheet steel, drawn into shape by presses. The lower edge of the body or alde of the can is spun out to form a shoulder, against which the

bottom reats, and is then spun over the lower edge of the bottom. It is explained that the caus are made of fine quality bright charcoal tin plate of heavy gauge, and that they are folded and wired at the top, with a lock seam on the side, soldered both inside and



Fig. 1.-Drawn Steel Bottom Freezer Can.

outside. The manufacturers claim that the bottom cannot fall out or be displaced, that it cannot break and that it does not leak. Cans of this construc-tion are used in their Lightning, Gem and Blizzard freezers. In Fig. 2 is



Fig. 2.-Electric Weld Wire Hoop.

shown the hoops used on the company's freezer pails. They are made of galvanized wire, welded by electricity and Imbedded in grooves in the pail. The Imbedded in grooves in the pail. The company claim that this style of hoop is twice as strong as the ordinary flat hoop, and are guaranteed by them not to fall off.

#### Milk Can Novelties.

The Chicago Stamping Company, Congress and Green streets, Chicago, have made a number of improvements in milk can stock, two of which are illustrated herewith. The first is a new handle named the Improved Chicago Milk Can Handle. This is stamped

with heavy mittens. The other improvement is a seamless rlm setter can cover. This is for setter cans to be submerged. Covers for these cans, as heretofore made, have been shallow



Fig. 2.—Seamless Rim Setter Can Cover.

and composed of two pieces. The new cover is stamped from one piece and is of such a depth that a much tighter fit is assured. These goods and others are shown in the company's new catalogue E, which has just been issued.

The November fire loss of the United States and Canada, as estimated by the Journal of Commerce, was \$12,135,800, an increase of nearly \$650,000 over the figures for November, 1893. This loss is the largest of any month in this year except July, and exceeds the October figures by \$4,000,000. During Novemher the fires of a greater destructiveness than \$10,000 each reached the large total of 187. So far, the losses for 1894 are, however, over \$26,000,000 less than for the same period of 1893. The current year appears to be the best the fire companies have experienced for a very long period, and the opinion in insurance circles is that the better class of companies will accure a considerable profit in the year 1894.

Estimates for river and harbor improvements under the War Department in the fiscal year ending June 30, 1896, include \$500,000 for improving the Hudson River and \$1,000,000 for improving the harbor between Philadelphia and Camden, N. J.

An electrical deal of some magnitude was consummated last week in Philadelphia, by which the Electric Storage Battery Company of that city virtually obtain control of all their former com-petitors in the business of supplying atorage batteries and put an end to all litigation over patent rights. The Elec-



Fig. 1.-Improved Chicago Milk Can Handle.

from one plece of metal, and is so formed that it fits the hand perfectly and at the same time the metal drawn under the handle makes a brace against the sides as a protection against jamming when the can is accidentally bumped. Extra heavy sheet metal is also used for the same reason. The handle is made of large size so that it can be readily grasped by hands covered tric Storage Company, who will have a paid up capital of \$500,000, have acquired all the battery patents and rights of the Consolidated Electric Storage Company, the Brush Electric Company of Cleveland, the Convent Electric of Cleveland, the General Electric Company, the General Electric Launch Company, the Electric Launch and Navigation Company, and the Accumulator Company.

## PLUMBING and GAS FITTING.

#### The Shepherd Trap.

The illustrations presented herewith show a downward opening trap, of which Fig. 1 Is a general view, that is being put on the market by the Shepherd Sewerage System Company, 51 Beekman street, New York. The trap is intended to be used as a front wall trap, and is made in several different

good flushing movement. When the trap is flushed the locking device is tripped, letting the valve open, and after the discharge the weight is sufficient to restore the valve to its place and be locked, while yet sufficient water is running to ensure a water seal in the trap, so that this trap is protected by both a metal and water seal against the entrance of sewer air to

SHEFHERD SEWERAGE
SYSTEM
Druin
Co.
Suiring new
Saver

The Shepherd Trap,-Fig. 1,-General View.

sizes for that purpose. The trap is provided with an anti-corrosive valve and seat, which is arranged with an automatic lock that prevents its discharge until sufficient water has accumulated to overcome the locking catch, when the discharge takes place with a strong flushing movement, drawing the air through the house drains by its action. It is said that the air from at least 12 feet of the house drains is exhausted positively at every flushing of the trap,

the building. At the office of the company the trap is shown in operation, and an elaborate arrangement of lead lined tanks, flush tanks and tripping devices are used to show perfectly the action of the trap.

#### Sewage Plant at Reading, Pa.

The city authorities of Reading, Pa., have awarded a contract for the erection of a disposal plant for the treat-

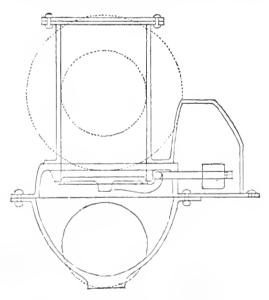


Fig. 2,-Sectional View.

and by this means the drain pipes are kept in much more sanitary condition than with the ordinary traps in use. Fig. 2 of the cuts is a sectional view of the trap at the valve seat, and shows the weighted lever which keeps the valve in place. This weight may be adjusted so that the quantity of water that must accumulate in the pipe above the trap will be sufficient to insure a

ment of the city's sewage. A tract of land on the east bank of the Schuylkill river, one mile below Reading, has been chosen for this purpose. The plant, as described, will consist of a system of artificial filter beds, arranged one above the other, through which the sewage will pass through layers of filtering material and air spaces alternately. It is claimed that the material will be puri-

fied and all the organic matter contained in it rendered innecessable action and oxygenation. It will be the first attempt to treat sewage on a large scale by this plan, and the results are awalted with interest. The sewage will be pumped to the plant from the collecting station through large mains laid along the towpath of the Schuylkill Canal. The plant is intended in the beginning to take care of 5,000,000 gallons of sewage a day, and is so arranged that it can be enlarged from time to time as required.

## Empire Double Acting Force Pumps.

The Goulds Mfg. Company, Seneca Falls, N. Y., are introducing double acting force pumps, as shown in the accompanying cuts, adapted to use in shallow wells, deep wells, drive wells



Fig. 1.—Empire Double Acting Well Force Pump.

or easing wells. The pump consists of a standard with the bearer top in one piece, cast in two half sections, strongly bolted and holding securely in place the two supporting pipes which form respectively the air chamber and discharge pipes connecting with the upper cylinder, as in Figs. 1 and 3. Fig. 1 shows the pump arranged for shallow wells, and Fig. 3 the pump arranged for deep wells. It is stated that the upper cylinder, Fig. 2, is brass lined and has a differential plunger, giving one-half the displacement of the lower working cylinder and contributing to an even and uniform discharge of water. It is pointed out that all stuffing boxes or glands are dispensed with by this construction; that all undue friction is avoided, and that an easy working pump

is secured. For lower working cylinder either the company's standard pattern iron brass lined cylinder or their brass body cylinder is used to adapt pumps for shallow wells of 25 to 30 feet, or for deep wells of 75 to 100 feet. Unless otherwise ordered, all Empire pumps

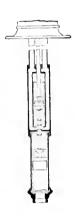


Fig. 2.—Detail of Cylinder for Shallow Wells.

are shipped put up for shallow wells as in Fig. 1, with the lower working cylinder screwed into the upper cylinder, and the universal bushing for the bottom of the upper cylinder and the top attachment for the lower cylinder tied on. To adapt the pump for deep wells the lower cylinder is unscrewed from the upper cylinder and the universal



Fig. 3.-Empire Double Acting Well Force Pump.

bushing is attached to the bottom of the upper cylinder, and the top cap is attached to the lower cylinder, and the cylinders are connected with the pipe and rod required for any depth of well, as shown in Figs. 3 and 4. In addition to the universal bushing a strainer and hose connection are furnished with each pump, for which no extra charge is The selection of an Empire made. pump, it is remarked, is governed by the style of the bearer top wanted and

whether a three-way cock with a rod for distributing the water may be re-quired. In other particulars, it is stated,

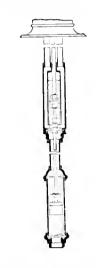


Fig. 4.—Detail of Cylinder for Deep Wells.

the pump may be adapted for various uses, as already explained.

#### TRAPS AND VENTS.

THE ANNUAL MEETING of the Master Plumbers' Assocation of Washington, D. C., was held at the Commercial Club last week, and after electing officers for the year and transacting regular bus-iness an oyster roast was indulged in. The election resulted as follows: President, James Nolan; first vice-president, D. J. Murphy; second vice president, Norman Pruitt; secretary, Edmond Mallet, Jr.; treasurer, James Ragan, and sergeant at arms, Donald William-

THE STORE of Smith & Clare, Philadelphia, Pa., dealers in plumbing supplies, was damaged to the amount of \$1000 by a fire last week.

THE SMITH & STROUSE PLUMBING AND HEATING COMPANY have been incorporated at Louisville, Ky.

A PLUMBER went to a suburban home, says an Indianapolis paper, to make some changes in gas pipes. The housekeeper was preparing "home made mince meat" which commended itself to the plumber. He induced the woman of the house to sell him 2 gallons. When the plumber was through his work he was invited to present his bill.

"Well, only \$4," he said. "By the way," he parenthetically remarked, "how much is that mince meat?"
"Well, only \$4."

THE MASTER PLUMBERS' ASSOCIA TION of Milwaukee, Wis., says a local paper, is about to apply to the Common Council for a change in the plumb. ers' license law. The Board of Public Works has been given the authority to recommend the granting of licenses by the Common Council, but it is contended by the plumbers that any person who can certify by witnesses that he is competent to conduct a buslness can obtain a license, whether he has ever served at the trade or not. The Journeymen's Association is also secking the ensetment of an ordinance requiring all members of the trade to be registered.

THE REGULAR MEETING of the Northeastern Master Plumbers' Association was held at Green Bay, Wis., last week.

Among business of importance transacted was the issuing of a call for a meeting of Wisconsin master plumbers at Milwaukee in January, for the purpose of organizing a State association.

THE CITY OF ROCKVILLE, CONN., Will ask the Legislature for permission to issue bonds to the amount of \$150,000 with which to build a complete system of sewerage.

THE THOMAS II. RADCLIFFE PLUMB-ING COMPANY of Brooklyn have certified to the State Department that half of their capital stock, which amounts to \$5000, has been subscribed for.

E. C. MANKIN, Norfolk, Neb., recently had his plumbing and steam fitting establishment damaged by fire.

V. J. Tolley, one of the plumbing inspectors of Sacramento, Cal., has been making a very thorough canvass recently and has had some defective plumbing rearranged.

"IT OUGHT TO BE JUST AS DIFFI-CULT," says the London Globe, "for a man to let an unsanitary house as it is for him to sell rotten fruit or decaying mest."

EAST RIVER LEAD COMPANY'S WORKS, 525 East Nineteenth street, New York City, are running to their fullest capacity, in order to meet orders now on their books. The proprietors report a very satisfactory demand for lead pipe considering the season, and they look for an excellent business after the turn of the year.

WOLFF'S DRAWN LEAD PIPES are the by the L. Wolff Mig. Company, 93 West Lake street, Chicago. The firm announce to the trade that they are making drawn lead traps and bends, both regular and special, and are presented to the property of covery description. psred to furnish traps of every description and in any quantity, they having a completely equipped plant in operation for their manufacture. They point out that the trap and vent screws are secured to the lead in such a manner that a perfect and permanent joint is assured. They do not project on the inside of the trap, and consequently give a full, clear waterway. From the statement that there are over 50 illustrations in the catalogue it will be seen that a great variety of traps may be obtained from this firm. The firm carry every degree of angle and bend and the accompany. ing lists show the various sizes in which they are made, together with prices. Along with the list prices are given telegraphic code words, which makes ordering by wire very simple.

THE WALPOLE CHEMICAL COMPANY, Walpole, Mass., are distributing circulars calling attention to the Walpole soldering fluid and the Walpole soldering salts which they manufacture. The fluid is referred to as a complete substitute for muristic acid and zinc, the objections to which are referred to. soldering salts are the same as the fluid, except that they are in a solld state and are thus much easier of transportation. The fluid is sold in different sized bottles and in carboys and barrels, while the salts are similarly sold in bottles and 25-pound jars and in barrels.

THE EXCELSION FAUCET MFO. COM-PANY of Yonkers, N. Y., were granted articles of incorporation at Albany on December 17. The capital stock of the new company is given as \$50,000; and the directors named are: Thos. E. Wing, Jr., and Sebastian Van Hanny of Yonkers; A. Hadley and Edward B. Montague of New York city; David

H. Smith, Joseph Tripp and others of Brooklyn.

Ossian Johnson, a graduate of last year's day plumbing class of the New York Trade School, is working with a New York plumber and has had his tools for three months. Previous to coming to the school he had no knowledge of plumbing, having worked at the carpenter's trade.

F. J. OTT, of the 1894 day plumbing class of the New York Trade School, visited the school this week. He is working regularly at the plumbing trade at Peekskill.

"Renalds & Co., Manufacturers of Fine Plumbing Materials," is on a new sign of raised gilt letters against a black background that extends across 52, 54 and 56 Cliff street, New York. The firm are increasing their quarters by taking the store at 52 and making a large opening from their other stores into it. The new room will be used for the display of manufactured lead goods, pipes, traps, bends, &c. This will enable a better display of their line of copper boilers and sinks. Some handsome lavatories and baths are arranged in their principal shownoom for the delectation of the plumber.

THE MASTER PLUMBERS' ASSOCIA-TION of New York city has asked associations throughout the State to arrange for a committee to visit Albany this winter to ask the enactment of a lien law similar to that in force in New Jersey.

THE EXCELSIOR FAUCET MFG. COMPANY have been incorporated to manufacture faucets in Yonkers, N. Y., with a capital of \$50,000. Directors: Thomas E. Wing, Jr., and Sebastian Van Henny of Yonkers; A. Hadley and Edward B. Montague of New York City; David H. Smith, Joseph Tripp and others of Brooklyn.

The members of the Central Supply Association, representing the manufacturers and wholesale dealers in steam fitting and plumbing material, met in quarterly session at the Hollenden in Cleveland, Ohio, last week. Seventy-seven members, the entire strength of the association, were present. President John F. Wolf of Chicago called the meeting to order and addressed the convention. He congratulated the association on the work already accomplished and on the large attendance present. After transacting its business, before adjourning the association passed a resolution sending their compliments to the Eastern Supply Association and its officers.

A PHILADELPHIA PLUMBER was aent to the house of a wealthy stock broker to make repairs. He was taken by the butler into the dining room and was beginning his work when the lady of the house entercd. "John," said she with a suspicious glance toward the plumber, "remove the silver from the sideboard and lock it up at once." The man of lead was in nowise disconcerted. "Tom," said he to his apprentice, who accompanied him, "take my watch and my chain and these few coppers home to my missus at once. There acems to be shady people about this house."

JUSTICE FOLLET of the General Term, first department, of the Court sitting at Auburn, N. Y., has handed down an interesting decision in that it affects the plumbing law of which so much has been said in that city. Judge Follet holds that it is the intent of the law to make only master plumbers who

are defined by the statutes as employers of other plumbers, pass an examination and obtain a certificate of competency.

LOUIS AND FRED DITTMAR have purchased the plumbing business of Matt E. Dun, Williamsport, Pa., and will conduct it hereafter. Mr. Dun will continue with them until April 1, and all the old men will be retained.

### Heating and Lighting of Windsor Castle.

A chatty account in a London paper of Windsor Castle, the chief palace and usual winter residence of Queen Victoria, contains the following in regard to the question of the heating and lighting of the castle:

For lighting the castle four methods are available, all of which are more or less in operation—vlz, gas, oil, candles, and the electric light; while for warming and cooking, wood, coal and gas are used. During the residence of the court some hundreds of persons are in the castle besides the royal family and the visitors; consequently, the adequate provision of all these processes is of a somewhat gigantic nature, keeping many servants constantly employed.

For the general lighting and heating. gas and coal are adopted; but this is not so in the Queen's own rooms, nor in many other of the royal apartments. In the matter of fires for her own rooms the Queen strictly banishes coal. She has a confirmed preference for wood only. Special supplies of wood have to be obtained for this purpose from the thickly timbered hills a few miles up the river above Windsor, where a number of workmen are regularly employed on this task. The timber, when felled and roughly trimmed on the spot, is brought down to a wharf on the river side, where it is dressed and cut up into blocks of fixed sizes; it is then stacked to get seasoned, and as required supplies are brought down to the castle for consumption in the Queen's rooms.

Gas and oil are excluded from her Majesty's apartments. Here light is provided by means of wax candies, all of one special pattern, their daily re-moval being the duty of a special official. In some of the other apartments gas is utilized, and in other parts oil lamps are burned, gas supplying the quarters of the staff generally. Moreover, although the Queen bars all but candles for her own private use, she has permitted the introduction of an e ectric light plant. This is placed un-derneath the north terrace, and is in charge of a special engineer, under the general supervision of a prominent electrician. This plant has never been largely used, but the light has been led into and applied to the main corridors, to one or two of the royal apartments and to the library. A year or so ago the original plant was replaced by newer and more powerful machinery, which would probably suffice to light the whole of the castle if the Queen so willed; but this has not yet occurred, nor is she llkely to sanction it. Electric bells and telephones abound throughout the castle, but electric light is allowed very limited play. The coal required for Windsor Castle

The coal required for Windsor Castle chiefly comes from certain collieries in North Wales, brought in train loads of perhaps 500 tons at a time. From the station it is carted to the Castle, in various parts of which are deep and spacious cellars into which it is tipped. Thence it is conveyed as required to the differ-

ent rooms and offices, numbering some hundreds.

Lifts are almost unknown in the Castle, consequently the coal has to be hoisted from the cavernous cellars and carried hither and thither by coal porters. The replenishing of the tires is carried out upon a most careful and efficient plan, footmen and other higher servants receiving the coal from the porters and passing it on to the royal apartments at interva's throughout the day.

Each official connected with heating and lighting the eastle has his allotted duties and recognized position, and thus the residence of the highest lady in the land is lighted and warmed in an efficient manner by many and various processes.

#### Paint for Metallic Surfaces.

At the recent meeting of the American Society of Mechanical Engineers a discussion was held on the preservative painting of metals, in the course of which M. P. Wood stated that graphite mixed with pure linseed oil, boiled, to which a small percentage of litharge, red lead, manganese, or other metallic salt has been added at the time of boiling to aid in its exidation, forms a most effective paint for metallic surfaces, as well as for wood and fiber; and some recent experiments with such paint applied to boiler tubes show it to be very effective in preventing the formation of scale. He commends the system of requiring all iron and steel intended for structural uses to be pickled and cleansed from mill scale, declaring it to be an absolutely indispensable condition for all material of the kind intended to be preserved from rust by painting, and it should then be painted two coats with pure raw linseed oil and red lead, after which the metal will stand the weather for 50 years without further treatment. A gallon of good red lead paint contains 5 pounds of oil and 18 pounds of red lead, and it will cover for a first coat about 500 square feet, and as a second coat about 600 square feet.

The real estate market in New York City gives satisfactory indications of a revival of business confidence in this section. Real estate men generally refer to their business as healthy and to the outlook as remarkably premising. A great deal of idle money is seeking this form of investment. Over \$3,000,-000 of business was effected last week in private sales alone, and it is known that a large number of substantial deals are on the point of consummation. Prices of real estate are firm. Business property is particularly sought after, but the demand embraces flats and apartment houses, vacant lots and dwelling houses, and a marked feature of the trading is the rapid reselling of property at a profit. The increase which le being made in transit facilities has given strength to uptown property, but the largest factor in the present im-provement is undoubtedly the result of the late elections, which have insured three years of clean government to the city.

On a dark day in London no fewer than 18,000 tons of coal are used in making the gas consumed.

Telephonic communication has been established between Berlin and Vienna.

## ROOFING AND CORNICE.

Pattern for a Pediment Miter on an Inclined Wash.

From J. T. B., Valdosta, Ga.—Will The Metal Worker present a method for obtaining the profite of an ogee molding in the return of a pediment—that is, to miter with the luclined molding, part of which intersects with an inclined wash. I send a sketch showing part of the pediment, the return molding, and part of the pattern. Is my method correct for obtaining the pattern?

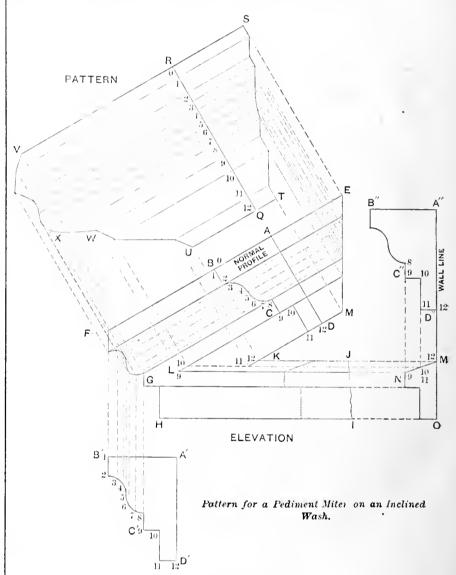
Answer .- In the accompanying illustration let E F H I include the elevation of the pediment. The normal profile A B C D occurs in the inclined molding F E M K, and the corresponding return molding is indicated by FG. The part G H of return is similar to C D of normal profile. The profile of inclined wash is shown by M N O, and the corresponding miter line in pediment by L K. Our correspondent has obtained the part of pattern indicated by T S from the miter line M E in the manner shown in the engraving, thus securing a correct result. An inspection of the engraving will show that it is only necessary to modify the part B C of normal profile, as shown by F G, A D representing the line of wall. Then to obtain the profile F G, proceed as

Draw a duplicate of the normal profile A B C D above or below the foot of cornice and in line with the horizontal molding, all as shown by A' B' C' D'. Divide the covered portions of the profile B C into any convenient number of equal parts, and through the points thus obtained draw lines parallel to the lines of the raking cornice. Divide B' C' in the same manner as B C, and from the points thus obtained in B' C' carry vertical lines cutting lines of similar number drawn from the points in B C. Through the points of intersection trace a line, as shown by F G.

To obtain the miter line on wash, as shown by L K, draw the profile of wash, M N O, above which draw a duplicate of the normal profile A B C D, as shown by A" B" C" D". In practice, it is only necessary to draw as much of the normal profile above the wash as is to miter on same, as C D. From the points in C" D" drop perpendiculars cutting N M, and from the points thus obtained in N M carry horizontal lines cutting lines of similar number drawn through C D, as indicated by the small figures. Through the points thus obtained trace a line, as shown by L K. It will be observed that U W of pattern is obtained from K L of elevation, and X V of pattern is obtained from G F of elevation. S T of pattern is obtained in a similar manner from E M of elevation. Then to obtain the pattern shown, proceed as follows: At right angles to the lines of raking molding, and at any convenient point, lay off a stretchout of the normal profile A B C D, as shown by Q R, through the points in which draw the usual measuring

#### FLASHINGS.

The Decatur Cornice Works, Decatur, Ill., favor us with a copy of their calendar for the year 1895, which they are sending to the trade. It is a card prettily decorated with a snow scene for the winter season and jwith rosebuda for the summer. The calendar proper is in sheets attached to the lower part of the card. The firm are



lines. Place the T-square parallel with the stretchout line QR, and, bringing it successively against the points in FGLK, cut measuring lines of similar number. In a similar manner bring the T-square against the points in ME, and cut lines of similar number in TS. Lines traced through the points of intersection, as shown by UWX V and ST, will produce the required pattern. Our correspondent may find the problem presented in The Metal Worker of February 3, 1894, of interest in connection with this.

manufacturers of sheet metal work, including galvanized iron and copper cornices, building fronts, door and window caps, &c.

The Caldwell & Peterson Mfo. Company, Wheeling, W. Va., manufacture continuous tin roofing, painted on one or both sides and made from 20 x 28 inch terne plates with double lock joints. The material is put up in rolls ready to lay on the roof, containing enough tin to finish one square on plain roof of  $\frac{\pi}{4}$  inch double seam roofing.

DISLEY & WEVAND, Waterbury, Conn., have taken the contract for the copper work on the new High School Building

at Middletown, the turret skylights on the Washington School, Waterbury, the metal panels, finials, tin roof and plumbing in the New Zehner block in Union City, and the ventilators and roofing of the Waterbury Button Company's new boiler house.

THE ATLANTIC HOTEL at Bridgeport, Conn., which is to be remodeled will have metal ceilings.

THE NATIONAL SHEET METAL ROOFING COMPANY, Jersey City, N. J., are building a new factory on a lot, 50 x 115 feet, fronting on Grand atreet, near Jersey avenue, of which they expect to take possession about February 1. In addition to their present line of roofing and roofing sundries the company will then handle a line of pressed and spun zinc ornaments for the trade. They also propose placing several other new articles of manufacture in the market at the same time.

THE PENN IRON ROOFING AND COR-RUGATING COMPANY, LIMITED, Twentythird and Hamilton streets. Philadelphia, are very busy just now. Their works are running at night to fill orders in hand for their roofing specialties.

THE KANSAS CITY METAL ROOFING & CORRUGATING COMPANY, Kansas City, Mo., advise us that their trade during the past three months has been the heaviest in the history of their business, the demand for corrugated iron for roofing and siding showing a marked increase over previous years. They also refer to the demand for building papers, metallic cement, &c., as being more than satisfactory.

THE ACME ROOFING COMPANY, Canton, Ohio, have changed their corporate name to the Acme Roching & Supply Company. Their business has been steadily growing, and they now propose to carry a full stock of tinners' and roofers' tools and supplies, and to meet the increasing demand for their goods have enlarged their facilities by a number of additions to their main buildings. The dimensions of the various buildings of their works are as follows: The office is 30 x 45 feet, two stories in hight; cornice shop, which is a room back of the office, 36 x 140 feet; the main building, in which are the eave trough and onductor pipe departments, 75 x 150 feet. The next building is 36 x 150 feet, the lower story of which is occupied by the stamping and spinning department, and the upper story is used as a made up stock room. Next to this is another building, 50 x 140 feet, in the lower story of which is the paint room and the upper story is likewise employed for made up stock. The boiler room measurements are 36 x 50 feet. The company have recently pur-chased a valuable piece of ground on the opposite side of the railroad, 150 fect square, on which they propose to erect a two-story building for their cornice shop and architectural work.

KNORR & BLOCKS, 165 Wells street, Chicago, are to furnish the cornices, skylights and corrugated iron work for the flat building of Julius Felcum, Sedgwick street and North avenue.

THE KNISELY & WELDHAM COMPANY, 68-74 West Monroe street, Chicago, are to furnish the galvanized iron cornices, tin work, skylights, ventllators and slate roofing for the pumping station at Kenosha, Wis.

Mexican Custom House returns show that the exports of coffee from the Republic during the fiscal year just closed

were 7,500,000 pounds, the major part of which went to the United States. A large proportion of the present season's abundant coffee crop is said to be in danger of being lost through the lack of labor in certain districts.

Electric Lighting in Loudon.

The preliminary efforts of the city authorities of London culminated, in 1891, in the formation of the Clty of London Ploneer Company, the necessity for which may not be obvious to our readers at first sight. Its formation was due to the fact that a certain date had been fixed for the commencement of the works, and that if an actual commencement had not been made before that time the powers would have lapsed, iavolving the entire loss of the money that had been spent in obtaining the provisional order and in other ways. This company were afterward absorbed by the City of London Electric Lighting Company with a capital of \$4,000,-000. The construction companies had to open and place the cables in 17 miles of trench, extending through 53 streets, between August, 1891, and February, 1892. The conduits consisted partly of the Callender-Webber bituminous casing and partly of iron pipe condults. These latter were used for the high tension mains, and the bituminous conduits for the low tension distributing system. Each separate conduit was placed in a separate way. Great pains were taken to exclude gas from the street boxes. To this end the boxes were constructed of glazed brick laid in Portland cement. and the joints between the conduits and the walls of the boxes were carefully sealed in. All idle ways were plugged, and no drainage of the box was attempted, save in cases where the pipes laid for this purpose were certain not to serve as ducts for gas.

As laid the conduits contained room for mains capable of supplying 340,197 eight candle power lamps. This output will, of course, not be reached for some years, but the works have been designed so as to permit of this load being dealt with without involving any change in the aystem of distribution as originally designed. Forty-four converting points were selected, each of which is intended to serve a compact district immediately around it Great difficulty was found in securing sites for these, as in the richer parts of the district, such as Lombard street, a square yard of ground space is valued at £1000, and in many other cases exorbitant rents were demanded for way leaves to give access to the converter houses, which It was intended to place underground. In two instances a way leave was obtained to construct an entrance to these stations through old graveyards, the actual substation being excavated under the adjoining footpath and roadway, and thus a fairly satisfactory site was secured. These stations were designed for a maximum output of 450 kilowatta each, and cost, including the capital value of the rent, about £3476.

The lamps erected in the city are big enough for a man to get inside. To give access for trimming and cleaning, the posts have holes alternately on either side, into which the trimmer puts eight portable steps of light steel, by means of which he mounts, and which he removes as he comes down. As the result of some experiments, rippled glass has been used in the lamp tops, which, while cheaper than the ground and opal glass, also tested, absorbs less light—viz., 21.73 per cent., as against 25.18 per cent. for the opal,

and 40.24 per cent, for the ground glass. The glass used is 1 inch thick, and is thus not very liable to accidental injury. The bases of the posts are of an ornamental character.

Himetailic Telephone Lines.

It has long been known that a wire composed of a steel core and a thick copper coating has greater electric conductivity than copper alone, besides possessing greater strength. The first use made of the bimetallic wire was in telegraphy, and afterward it was tried for tele-phone service with equally good results. The general fact was brought out a year or two ago by General Eckert, now prosident of the Western Union Telegraph Company, that if a single wire of this sort were employed in telephoning, with the earth for a means of returning the current, conversation would be more distinct than if copper alone was resorted to, and there were two wires, forming a complete metallic circuit. Some interesting details corroborative of that statement are afforded in the recently issued report of the Chief Signal Officer of the United States Army. General Greely tried bimetallic wire laying on wet grass and in a half mile of mud, had a few turns of it made about an iron bar driven into the ground at a point on the route, made a connection with a burled water pipe, and otherwise gave the electric current a good chance to escape, and yet without materially affecting conversation over the line. It was only when the bare wire was immersed in a lake that communication was stopped. Experiments were also made with a silicon bronze wire, which withstood still more severe tests. The line could be cut and the ends inserted into the ground, not merely a few inches, but aeveral feet apart, without effect. Six such breaks, short ones, were made in a line 150 yards long, and one break nearly or quite 45 feet long in another line, and in both instances signals were audible, though faint.

It is current report in New York that a suit will be begun in the United States Courts against the National Lead Company for the recovery of some \$25,000, alleged to have been unlawfully obtained from the Government in drawbacks upon exports of pig lead. Charges to this effect were made last winter by a discharged employee of the Lead Company and the affair was investigated by the Treasury Department. Colonel Thompson, the president of the company, says, however, that the Treasury Department had already exonerated the company and that no papers in a suit had been served.

The latest report of the Director of the United States Mint places the world's gold production for the calendar year at \$170,000,000. This estimate, however, is a very conservative one, and Director Preston is of the opinion that the figures are likely to be considerably larger when the official returns are issued. Reports from the special Treasury agents point to the conclusion that there will be an increase of not less than \$7,000,000 in the domestic product over that of last year, which was \$35,955,000. The total production throughout the world in 1893 was \$157,000,000. The estimated increase in the production of the precious metal, outside of the United States, is \$10,000,000; in South Africa, \$3,000,000.

# TIN PLATES.

#### Criticism of Welsh Methods.

A correspondent of the London Iron and Steel Trades Journal, writing from Chicago on the foreign and domestic tin plate trade, refers to the causes which tend to the decline of the importation of tin plates into this country, and which at the present time, he says, are giving the American manufacturers a firm grip on the trade which it will be impossible hereafter to loosen. The chief of these causes he refers to as follows:

First, the irregularity of the shipments from Wales. It is a source of universal complaint all over the United States that no tin plates are shipped on time according to contracts. We know, as a matter of fact, that many orders for tin plates which were placed in May and June last are still unfulfilled, and as for the orders sent forward during July, August and September the percentage of the plates thus ordered that has come forward is indeed very small.

This is a state of business that the American purchasers of tin plates will not long continue to submit to. In sending their orders to Wales they have to buy in comparatively large quantities and place their orders considerably ahead of their requirements, thus taking the risk of the market, and for the past two years this has been a great source of loss to them, whereas if they placed their orders with the local manufacturers they can buy in much smaller quantities and can depend upon a much earlier delivery, and although they may have in some cases to pay a higher price, yet they are quite willing to do so, as the advantage thus gained is of more value to them.

And further: The local terms of payment are very much more advantageous than the import terms, the latter being, as a rule, "Cash against documents," while the former are from 60 to 90 days, or less 1 or 2 per cent. discount for cash in ten days.

Another great cause for complaint is the irregularity in the quality of the plates shipped. The low price of plates now prevailing has tempted many manufacturers to skin down the quality of the plates to such an extent that they cannot now be depended upon, and of late there have been very frequent complaints that the plates packed in the same boxes vary very considerable as to weight and thickness; and also that the boxes in which the plates are packed, being so light and so badly nailed together, are utterly incapable of standing the handling incidental to such long transmission, and on arrival at destination it is found that a large per-centage of the boxes are broken and the plates damaged.

#### SCRAP.

AT A SPECIAL MEETING of the Baltimore Steel, Iron & Tin Plate Company, Baltimore, Md., held last Saturday, it was decided, owing to the recent large increase in the business of the company, to increase the capital stock from \$50,000 to \$100,000.

MATTHAI, INGRAM & Co., Baltimore, Md., advise us that they have discontinued the manufacture of tin plates since the passage of the new Tariff, having found it unprofitable. The firm only made tin plate for their own use.

WE ARE FAVORED by the Old Dominion Iron & Nail Works Company, Richmond, Va., of which Arthur B. Clarke is the president, with a neat folder containing information relating to the American tin and terne plates manufactured by the firm. These include eight brands of roofing ternes, which are already on the market, and two brands each of coke and charcoal bright plates, which, they state, will be ready in the course of a few weeks. The company have at present two tinning pots in operation. They contemplate making their own black plates in the near future.

THE BRITISH CONSUL at Barcelona, Spain, reports to his Government that the tin plates made at Bilbao, in the north of Spain, are driving the Welsh product out of that market. The Bilbao B. I. and B. II., 14 x 20, equivalent to Welsh coke, are exclusively used in Barcelona and its vicinity, leaving the Welsh plates limited to the purchase of IC, 20 x 28. The Bilbao plate, he says, although rougher than the Welsh material, is cheaper and serves the purpose.

The American Tin Plate Machine & Meg. Company, Linfield, Pa., are kept husy in the production of their special continuous roofing terms. They have at present two Buckman continuous machines and two 20 x 28 tinning pota in constant operation, and have decided to duplicate all their machinery.

KIRKPATRICK & Co., Limited, Pittsburgh, Pa., have ceased the manufacture of black plates for tinning.

STRATION & TERSTEGGE, manufacturers of thware and tinners' supplies, Louisville, Ky, inform us that there is no truth in a report which has been circulated in the daily press to the effect that they are about to establish a tin plate plant. The erroneous report arose, they suppose, from the fact of the firm having purchased the Wrampelmeier furniture factory in Louisville, where they have started up their tinware plant, which was destroyed in July last.

Notices were posted last week at the Upper Forest and Worcester Tin Plate Works, Morriston; at the Llwydarth Works, Maesteg, and at the Victoria, Baglan Bay, and Vernon works, Britton Ferry, South Wales, that operation would be suspended at the close of this month.

According to the official returns of the quantities and values of dutiable goods remaining in the bonded warehouses of New York City on November 30 it appears that 6,547,262 pounds of tin and terne plates, valued at \$152,205, were thus held. On the last day of the previous month the figures were 6,237,584 pounds, of the value of \$148,413; and on November 30, 1893, 6,416,

061 pounds, valued at \$138,979. The above statistics show that current stocks awaiting distribution are about normal in volume.

Kann Bros., 525 East Nineteenth atreet, New York, closed down their tin plate plant after the coming into effect of the new tariff on October 1, and it has since remained idle. The firm claim that they cannot coat the plates and sell them in competition with the imported article at the prices now ruling.

THE NEW TIN HOUSE in course of erection by the Wheeling Corrugating Company, Wheeling, W. Va., is rapidly approaching completion, but as yet it is uncertain when the plant will be ready for operations.

Work is progressing satisfactorily and rapidly on the new black sheet mill and tin plate plant of the Crescent Sheet & Tin Plate Company, Cleveland, Ohio, and it is expected that the production of black sheets will be begun by April 1 next. The company will operate this department of their works first, confining their product to a superior quality of black sheets for tinning. Later on the manufacture of tin and terne plates will be taken in hand. The buildings now in course of erection are a hot mill building, all steel, 105 x 175 feet, and a combination building containing the annealing, pickling, cold rolling, tinning and warehouse departments, which will be all steel and brick, 105 x 168 feet, with a wing measuring 48 x 48 feet. The buildings are being put up by the Shiffler Bridge Company of Pittsburgh. The Rankin & Fritsch Foundry & Machine Company, St. Louis, are supplying four Corliss engines; the Frank-Kneeland Machine Company of Pittsburgh are making four stand of hot mills, and four cold mills, roll lathe, doubling bar, and squaring shears. The Industrial Works, Bay City, Mich., have the contract for the supply of two electric cranes, and the Elwell-Parker Electric Company, Cleveland, Ohio, will furnish a generator to run these cranes, together with 15 are and 60 incandescent lights. The H. E. Teachout Company, Cleveland, will furnish six tubular boilers 72 inches by 18 feet.

LATEST ADVICES from the other side indicate that the example of the Morewood Company, in agreeing to a reduction of 10 per cent. for three months in the wages of their workmen, has not yet been followed by the other Welsh tin plate manufacturers. The wage question continues as far as ever from settlement, in the industry generally; and it is regarded as more than probable that the majority of the works will be closed for an indefinite period after the Christmas holidays.

N. & G. TAYLOR COMPANY, Philadelphia, manufacturers of tin plates, are turning out a fine quality of bright tin plate called "Brilliant." They describe it as extra heavy coated and extra fine finish, especially adapted for high grade work. They advise us that they use in its manufacture a special brand of pig iron and the finest quality

of materials, the sheets being all packed in tissue paper and the boxes strapped with hoop iron, the plates being made in all sizes and thicknesses.

THE BLAINA TIN PLATE WORKS, Blains, Monmouthshire, are to close down indefinitely on Saturday, pending better prices and the settlement of the labor question. Other works in the West of Eagland are preparing to follow suit.

THE SCOTTDALE IRON & STEEL COM-PANY, Limited, Scottdale, Pa., have increased their output of light sheets this year from 8000 to 12,000 tons.

THE CLEVELAND TIN PLATE COM-PANY, Cleveland, Ohio, have sold their machinery and trade mark—"Buckeye"—to the Britton Rolling Mill Company of that city, and have discontinued the business of manufacturing tin plates.

WE ARE INFORMED by the St. Louis Stamping Company, St. Louis, Mo., that their tin plate plant is now running full on a non-union basis, and turning out plate equal to anything they have ever produced.

### HEATING & PLUMBING.

NEW WORK AND CONTRACTS.

G. A. STANSFIELD & Co., Marietta, Ohio, are putting the heating apparatus in the City Hall.

THE STEAM HEATING PLANT for the new South Bethiehem National Bank Building has been completed and put in operation by Edward Laufer, 22 East Third street, South Bethlehem, Pa. There are 30 radiators in the building.

THE MODEL HEATING COMPANY, New York, have recently installed steam heating plants at Pisinfield, N. J., in the residence of S. Edsall and in the Muhlenburgh Hospital, in a hotel at Finderne, N. J., and hot water heating plants in the residences of S. Daniels, Roseville, N. J.; J. Schwenk, Ludlow, N. Y., and Rev. J. Daniels, Ocean Grove, N. J.

JAMES H. JOHNSTON, Washington, N. J., has secured the contract for heating the Presbyterian parsonage, and will use an Auburn boiler.

St. Mary's Roman Catholic Church, at Mentgomery, N. Y., is to be heated by steam, the contract having been given to James Wallace of Pine Bush.

ROBERT CAMPBELL, 305 Pearl street, New York, is completing a hot air heating system in a hotel at Liberty, N. Y.; steam heating plants in the school at Unionville, N. J., and in the residence of M. T. Richardson, at Orange, N. J.

S. E. Kumler and F. H. Rike of Dayton, Ohio, were recently at Westerville, arranging to put heating apparatus in the new Christian Association Building.

JOHN FRANKLIN, New Haven, Conn., is building a store and five tenements, each having five rooms, to have a plumbing system.

J. R. Morrison & Co., 51 Charleston street, Boston, Mass., are using a Humber hot water heater in the building of Mandell & Libbey, at Dorchester, Mass.

Mandell & Libbey, at Dorchester, Mass.
J. J. LAWTON, New Haven, Conn.,
will erect a residence, to be heated by
hot water and several fire places and to
have a fine system of plumbing.

FRED. J. BLISS of Hartford, Conn., is to build a residence that will have a hot water heating system, a fine job of open work plumbing and five fire places.

JAS. T. KAY, Meriden, Conn., has the contract for heating the Liberty Street School House.

THE ATLANTIC HOTEL, at Bridgeport, Conn., is to be remodeled and will have a new heating plant and new bathrooms.

JOHN McSHARRY, Bridgeport, Conn., will erect two flats, which will have four rooms each, with water closets, wash trays, &c.

H. BEUTELSPACHER of Bridgeport, Conn., has the contract for fitting up the building on Middle street, which is to be occupied by the Meyer, Jonasson Company. The contract includes gas piping for 500 lights, several water ciosets, sinks and bowls and other fixtures.

THE CONTRACT for heating and plumbing in the new school house on Washington street, Central Falls, R. I., was awarded to the Union Steam & Gas Pipe Company of Pawtucket.

THE CONTRACT for heating and ventilating apparatus for the new school house at Milford, Mass., has been awarded to the Fuller & Warren Heating & Ventilating Company.

CHAS. E. BOND, Newark, N. J., is doing the plumbing in the new house being erected by Eugene Banen.

THEODORE GEISER. Newark, N. J., is doing a fine job of plumbing in a new house for Mrs. Mattson.

W. Zeliff, Newark, N. J., has the contract for a \$1000 plumbing job in the saloon of Christian Gisch, where the Directo closet will be used.

H. M. NORTON, Easton, Pa., has just completed a steam plant in the First Presbyterian Church in Phillipsburg, N. J. The boiler used was a No. 47 Double Florids.

THE THEO. JACOBS COMPANY, 72-74 Market street, Chicago, have the contract for hot water heating in the residence of A. N. Reece, 4317 Drexel boulevard.

M. J. Cornov, 78 Dearborn street, Chicago, has the contract for plumbing, gas fitting and sewerage in the residence of M. Burke, 2815 Michigan avenue.

PURVES & BROCKWAY, 215 Fifth avenue, Chicago, are to install a hot water heating plant in the residence of Architect J. C. Lewellyn, La Grange, Ill.

THE SAMUEL I. POPE COMPANY, 237 Fifth avenue, Chicago, have the contract for steam heating in the school building, Champlain avenue and Sixty-fifth street.

The L. H. Prentice Company, 203-205 Van Buren atreet, Chicago, have the contract for ateam heating in the Chicago Horse & Carriage Exchange, 1635-1637 Wabash avenue.

THE JOHN DAVIS COMPANY, 69-79 Michigan street, Chicago, are to install a steam heating plant in the hotel building of A. J. & J. P. Smith, West Pullman, Ill.

T. R. BLAKESLEE, New Haven, Conn., is to build a flat to be heated by hot water and have a plumbing system.

THE FULLER & WARREN COMPANY, 147-149 Lake street, Chicago, are to place a combination of hot water and

warm air heating in the residence of E. T. Malone, Oak Park, Ili.

GEO. B. COBB & Co., New York, are installing a No. 1 Advance boiler and a hot water system in the residence of H. F. Coats, Brooklyn.

Apgar Bros., 2085 Seventh avenue, New York, are using a No. 54 American boiler for heating the Paulsen Flats.

T. F. WILLIAMS, Woodport, N. J., is installing the heating plant, using a Solcil bolier, in the hotel of Thomas Bright, at Pompton Lakes, N. J.

Thos. Conlon, 3905 Cottage Grove avenue, Chicago, has the contract for the plumbing, gas fitting and sewerage in the residence of E. F. Baley, Fortyninth street and Forestville avenue.

TUCKER BROS. & Co., 4255 Cottage Grove avenue, Chicago, are to Install a hot water heating plant in the residence of F. H. Barnes, 4315 Langley avenue.

BRYNE & RYAN, 252 Forty-third street, Chicago, have the contract for the plumbing, gas fitting and sewerage in the residences of N. Mayer and S. Block, Drexel boulevard and Forty-third street.

WM BOWDEN, 233 Twenty-fifth street, Chicago, has the contract for the plumbing, gas fitting and sewerage in the residence of A. Junge, 4542 Michigan avenue. The L. Woiff Mfg. Company's goods are to be used exclusively.

THE BOARD OF EDUCATION Of Muscatine, Iowa, has awarded the contract for water and sewer connections and putting in extra pipes for steam heating in the Third ward to Barry Mfg. Company for \$194.

EDWARD E. PARKER, Woburn, Mass., has secured the contract for heating the new Cambridge street schoolhouse at \$615, and will use a large size Richmond sectional steam boiler.

THE COMMITTEE ON FIRE DEPARTMENT reported to the City Council of Somerville, Mass., that a contract had been made with Albert B. Franklin, Boston, for heating and ventilating apparatus in the new hook and ladder truck house at a cost of \$494, and with 8mith & Anthony, Boston, for the new central fire station at a cost of \$993.

WEATHERLY & PULTE, Grand Rapids, Mich., have been awarded the heating and ventilating contract for the new high school building at Appleton, Wis. They now have a force of men engaged on a similar job at Galva, Ill.

THE BOARD OF ALDERMEN OF Taunton, Mass., have ordered that the city expend \$11,000 to put a new sanitary and heating apparatus into the High School Building. The system to be used is the Fulier & Warren.

Secretary Herbert has notified the Cramps of the preliminary acceptance of the new cruiser "Minneapolis." The vessel will not be finally accepted and paid for, however, until, under the terms of the contract, she has demonstrated her efficiency by five months' trial in actual naval service. She will be placed in commission at the League Island Navy Yard this week. The Cramps have been paid the apeed premium of \$414,600 earned by the "Minneapolis."

Shipbuilders of Bath, Maine, express themselves as strongly opposed to the proposed free ship legislation in Congress.

## STOVE TRADE NOTES.

#### The New York Stove Trade.

The local stove trade for the past month has been very dull, demonstrating the fact, as referred to before, that the people will yield to no argument and no pressure to buy a stove except when suffering from cold. The business of the year 1894 is practically done. Sales from now on will bear very lightly on the result, and the Intervening time between now and January 1 will be spent in waiting for that date to take account of stock and balance the books, a proceeding which, with many concerns, will be no less melancholy than it was a year ago, if it is not even more so. Despite the belief of many that the business of the country would rally from the panic of 1893 quite as readily as it was prostrated by it, and despite the predictions that 12 calendar months from the time it started would practically embrace the period of business depression, it has extended throughout the entire year, and, to the amazement of many, eclipsed the record of last year for diminished sales.

The stroke to business was one of paralysis rather than a mere shock or faint. The quotation that " Hope springs eternal in the human breast" applies to no part of the human family more than to stove men, and they have hoped (and apparently with good reason) for a fair year's business in spite of the generally adverse conditions. The record of heat during the summer seemed to furnish excellent ground to expect an unusually cold autumn and a brisk fall business, but the work of equalizing temperatures has been as dull as everything else, and apparently has been postponed indefinitely. The weather in November was colder than It was in November last year, but was poorly distributed to aid the stove business; cold waves lasted but a day at a time and were frequently followed by rain, and during December the weather has been unusually warm.

In one respect only has there been improvement in conditions that last year worked seriously against profits in the stove business, and that is in the number of failures, of which there have been fewer this year, and losses from bad debts will be less. Losses of this nat ure being nearer the normal point, diminished profits will be due to the reduced sales and, among manufacturers, the suspension of foundry work. Concerns which have been the most fortunate in not contracting bad accounts may have enough to the good on ac-

count of it to offset diminished profits due to reduced sales, and show a result very little different from last year. But cutting of prices, which, though not done systematically through the year, was resorted to occasionally in the dullest months, will cut a figure, the size of which can only be ascertained when accounts are all cast up.

Yet will the stove man not abandon hope. Inded there is no need to do so. Some unfortunates will fall out of the ranks, but there is a future for the stove business and a bright one, and there is scarcely a line of trade which will share more abundantly in the prosperity which the country at large awaits than the stove industry. The dilapidated and forlorn looking specimens of stoves which in ordinary times would have been cast out after the winter of 1892 and 1893, but which, owing to the hard times, are still doing duty to the best of their ability, will go to the dirt heaps as soon as prosperity returns.

#### The Philadelphia Stove Trade.

The stove trade in Philadelphia and vicinity is in a very unsatisfactory condition. The volume of business for the month of November compared unfavorably with that for the corresponding month of last year, and the indications are that the business for the present month will be exceptionally light. The weather is an important factor in the stove trade of this section, and the extremely mild weather which has prevailed this season has not conduced to the consumption of heating goods; consequently the demand for them is not very good. Such orders as come in are wofully small and suggestive of a few holes in retailers' stocks of staples which must be filled. Most of the business offering is from the agricultural districts, which fact is evidence that as yet there is little improvement in the condition of the wage earners, or that the slight improvement in business in general has come too late to benefit the stove trade this season. The trade in heating goods is largely dependent upon the working classes, and when the industrial condition of the country is depressed the demand for these goods is much reduced. The introduction of cheap lines of furnaces, too, has affected sales somewhat, especially of high priced goods.

Cook stoves and ranges are in fair demand, but retailers seem unwilling to shoulder much in the way of stock.

The furnace trade may be considered

satisfactory as far as demand is concerned. The number of dwellings erected within the city limits during the year is in close proximity to the number erected in 1893. There is possibly a considerable falling off in the aggregate value of the buildings, as operations have been, for the most part, confined to the typee of two and three story houses for which the city is famed. The fact that all these houses are heated by hot air would seem to furnish the reason for the good condition of the furnace trade.

The production of the foundries in this city and in the Schuylkill Valley amounts in the aggregate to about half the total capacity, which is ample for the present requirements of the trade. It is not unlikely that this production will be curtailed somewhat after the commencement of the new year. Founders realize that the season is too far advanced to expect much improvement, but if cold weather should set in and continue, the season may be extended. Prices seem to be strong, and little or no cutting is heard of. With the small specifications dealers are able to offer there is little inducement to abate prices.

#### The Ohio Stove Trade.

The fall season in the stove and range industy is about over, and from now on only desultory sorts of orders can be expected. The open winter thus far experienced has carried the trade beyond the usual limits, and a summing up of the season's business, all the discouraging and favorable events being weighed, shows a relatively satisfactory volume, and altogether the year has not been conspicuous for profits, yet compared with the preceding year the gain has been perceptible and the outlook for the spring season of 1895 is brighter than at any time during the past year.

Some manufacturers having contracts for liberal quantities of pig 1ron have requested furnaces to delay deliveries, there being less disposition to melt iron until after the turn of the new year, and we have information that some foundries have shut down entirely, at least until after the holiday sesson.

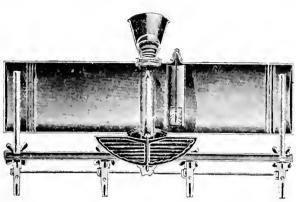
If people were as able as they are willing to purchase there would be a rapid recuperation in all lines; as it is, there are indications of a gradual resumption of work by wage earners, but no marked improvement is anticipated before the end of the holidays.

One factor which has been noted, but which is worthy of repetition, is the getting out of new patterns and designs and the improvement of old styles. Each mail from the manufacturers brings fresh evidence of a constant effort to keep pace with modern ideas.

A regulation of prices seems a necessity in some quarters, and doubtless a reformation may be necessary, as it can be readily seen that the peculiar conditions of the past financial and business crisis have given rise to abuses which could only grow in an abnormal soil.

Upon the whole, however, the past

lighted a short time the heated air delivered through the air tube to the evaporator expels the absorbed fluid and leaves the asbestos dry, ready for the next lighting. At the base of the burner is an effective and ingenious feature in the shape of a controllable sub fire. We understand it is the purpose of the makers of this stove to dispense with the use of a sub-fire as much as possible, and to that end they have always kept in view a construction favoring a quick heating of the parts of the buruer and tubes, and thus avoid all occasion for the use a sub fire in the summer. To provide against the un-



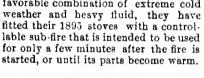
Constructive Features of the New Process Vapor Store. - Fig. 1. - Vertical Longitudinal Section of 1895 Tank.

six months have contributed trade beyond the general expectation and have revived hope and encouragement for the coming spring season.

#### Constructive Features of the New Process Vapor Stove.

In a recent issue we called attention to some of the features which would be found in the 1895 pattern of the New Process vapor stove, as manufactured by the Standard Lighting Company of 100-118 Perkins avenue, Cleveland, Ohio. We have pleasure at this time in presenting sectional views, one of which shows the construction of the 1895 tank and the other the drip and hot air tubes, removable glass sight feed, brass evaporator, center tube, burner cap, burner drum with controlable sub-fire, cast iron reinforcing ring and cast heat collector. One of the dis. tinguishing features of the reservoir, a section of which is shown in Fig. 1, is a brass float which maintains a uniform fluid level in the float chamber, regardless of the quantity of fluid in the reservoir. The object of this is to keep the flames from shrinking until the reservoir is completely exhausted. Another feature is a removable strainer which can be taken out for cleaning, while a third point of interest is the vent tubes, designed to draw off any vapor which may form about the points of the needle valves and interfere with the drip of the feed. The moving parts of the reservoir are made of brass, are non-corrosive and practically indestructible. The sectional cut represented in Fig. 2 of the illustrations shows the interior of the vapor tube and burner, and reveals almost at a glance the simplicity of the construction employed. In the upper or "funnel" end of the tube is a brass evaporator resting on a cylinder of asbestos paper, the office of which is to absorb and retain temporarily any excess of fluid that may not evaporate when the stove is started in cool weather. After the stove has been

favorable combination of extreme cold weather and heavy fluid, they have fitted their 1895 stoves with a controllable sub-fire that is intended to be used for only a few minutes after the fire is



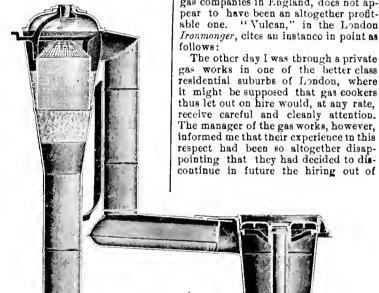


Fig. 2.—Sectional View, Showing Interior Construction of Tubes and Burner.

The simple shifting of a knob then extinguishes the sub fire. The makers of the New Process claim as the result of five seasons' experience and hard work that the stove is now constructed with a view to its easy manipulation, "and in

either gas stoves or cookers. He showed me at the works a number of gas cookers which had been returned as imperfect, but which were simply blocked up with grease and fatty matter from the cooking, and which seemed as if there every sense as complete and finished an | had been no attempt at either cleaning

article of kitchen furniture as it is possible for skill, pluck and money to produce."

#### A Bogus Check Man.

We have received from W. T. Twltmire, Bellefonte, Pa., the following letter that will be read with interest by the trade: "Last February I sent you a notice to put in The Metal Worker in regard to a bogus check man who was working the stove trade. After you published the notice I had quite a lot of letters from stove men in this and other States, who thought I had struck the plan to stop his operations, and we did stop him, as you will see by the inclosed letter from a sheriff in Connectieut. I thought that parties who had been stuck would like to hear from the old man, as they will remember him for a long time. Several who wrote me are out \$50, but if they had made use of The Metal Worker three months sooner some of us would have been in our cost. I wrote you the next week after I was stuck."

Inclosed with the letter from Mr. Twitmire is another from the sheriff of Lakeville, Conn., which reads as follows: "I inclose the bogus check that I received from you last April, and the old man has gone to our Connecticut State Prison for five years, but have enough against him here in this State to keep him in during his life. He was only tried on one count."

#### Hiring Out of Gas Stoves by Gas Companies.

The system of hiring out of gas stoves for heating and cooking which was introduced some time ago by some of the gas companies in England, does not appear to have been an altogether profitable one. "Vulcan," in the London Ironmonger, cites an instance in point as

gas works in one of the better class residential suburbs of London, where it might be supposed that gas cookers thus let out on hire would, at any rate, receive careful and cleanly attention. The manager of the gas works, however, informed me that their experience in this respect had been so altogether disappointing that they had decided to discontinue in future the hiring out of

the stoves or the utensils accompanying them since they were sent out. The great expense, he added, which was incurred in simply cleaning the gas stoves and cookers which were sent back to them, and which, except for this, were otherwise perfect, more than overbalanced any profit they secured in the supply of the gas, and they had therefore determined that users who wished to be sup-

#### Cupola Tuyeres.\*-ii.

BY DR. EDWARD KIRK.

#### Hlakeney Tuyere.

In Fig. 6 is seen the Blakeney tuyere used in the Blakeney cupola constructed by a Steel Company in Springfield, Ohio. This tuyere is a modification or an improvement on the sheet

mits the blast freely and evenly to the cupola and very good melting is done with it. All the tuyeres I have described may be used with elther coal or coke

#### Horizontal and Vertical Slot Tuyere.

In Fig. 7 is seen the horizontal and vertical slot tuyere. This was designed

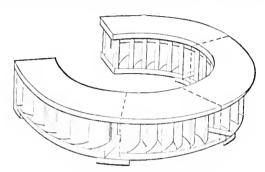


Fig. 6.-Blakeney Tuyere.

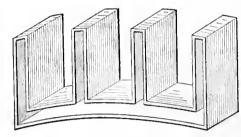


Fig. 7.—Horizontal and Vertical Slot Tuyere.

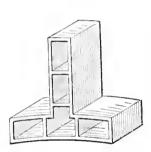


Fig. 8.—Reversed T Tuyere.



Fig. 9.- Vertical Slot Tuyere.



Fig. 10.—Vertical Slot Tuyere.



Fig. 11.—Truesdale Reducing Tuyere.



Fig. 12.—Lawrance Reducing Tuyere.



Fig. 13.—Triangular Tuyere.

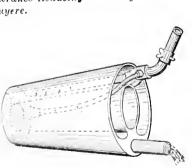


Fig. 14. -- Water Tuyere.

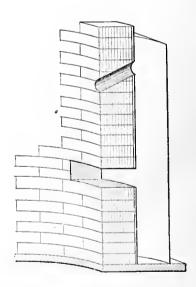


Fig. 15 .- Colliau Tuyere.

CUPOLA TUYERES.

plied with gas stoves or cookers would have to buy them on their own account, as they would now discontinue altogether the hiring out system, which had proved anything but profitable.

THE VAN WIE GAS STOVE COMPANY of Rockford, Ill., are about resuming operations at their works in the Knowlton Building.

blast tuyere, and extends all the way around the cupola. It is supplied from an outside belt air chamber riveted to the shell. The blast is conducted to the air chamber through one pipe, and, striking the blank spaces sidewise in rear of chamber, passes all around through the curved tuyeres into the center of the furnace. This tuyere ad-

for coke, and I have never seen it used in but one cupols, a 40-inch one. One tuyere was placed on each side of the cupols. The horizontal slot of each tuyere, 1 inch wide, extended one-third the way around the cupols, and the vertical slots, 1 inch wide and 12 inches long, were placed above it as shown. The tuyere did excellent melting, and the cupols could be run for a long time without bridging.

<sup>\*</sup> Copyrighted, 1894, by Edward Kirk.

#### Reversed T Tuyere.

In Fig. 8 is seen a vertical and horizontal slot or reversed T tuyere, also used for coke. The slots in this tuyere are from 2 to 3 inches wide and 10 to 12 inches long. From two to eight of these tuyeres are placed in a cupola, according to the diameter. This tuyere has been extensively used, and is said to be an excellent tuyere for coke melting.

In Figs. 9 and 10 are seen the vertical slot tuyeres used principally in cupolas of small diameter to prevent bridging. They are made from 2 to 3 inches wide and 10 to 12 inches long, and two or more are placed in a cupola at equal distances apart.

#### Truesdaie Reducing Tuyere.

In Fig. 11 is seen the Truesdale reducing tuyere designed by a Mr. Trues-dale of Cincinnati, Ohio, and extensively used in cupolas in that vicinity about 1874. The tuyere consisted of one opening or tuyere placed directly over another until six, eight or ten tuyeres were put in. The lower tuyere was made 3 or 4 inches in diameter, and tuyeres above it were placed 1 inch apart, and each one made of a smaller diameter until they were reduced to 1 inch. The bottom row of tuyeres were placed 2, 4 or 6 inches apart, and the tuyeres in each succeeding row were placed further apart, were of a smaller diameter and admitted less blast to the cupola toward the top of the bed than at the bottom. The cupolas were generally boshed, and the tuyeres supplied from an inside belt air chamber, formed of cast iron staves, to which the tuyeres were attached by cleats or dovetails cast on the staves. Very fast melting was done in cupolas with this tuyere, but the tendency to bridge in cupolas of small diameter was so great that it could not be used. In large cupolas, however, it gave excellent results, and is still in use in numerous foundries.

#### Lawrance Reducing Tnyere.

In Fig. 12 is seen the Lawrance reducing tuyere designed by Frank Lawrance of Philadelphia, Pa., and used in the Lawrance cupola, built by him. This tuyere was designed for either coal or coke melting, and works equally well with either. The opening at the bottom is from 3 to 4 inches square, and the slot from 10 to 12 inches long, from 1 to 11 inches wide at the bottom, and tapers to a point at the top. They are placed in the cupula from 6 to 12 inches apart, and supplied from a belt air chamber inside the casing. The air chamber in this cupols was first formed with cast iron staves, and the tuyeres held in place by cleats cast upon the staves. But the staves were found to break after repeated heating and cooling, and a boiler iron casing is now used for the air chamber. This tuyere and cupola does excellent melting, and a great many of them are now in 118e.

#### Triangular Tuyere.

In Fig. 13 is seen the triangular tuyere, designed by the writer over 20 years ago to prevent bridging in small cupolas and extensively used in both small and large cupolas, with either coal or coke. This tuyere may be made with the base and sides of the tuyere of an equal length, forming an equi-lateral triangle, or the sides may be made longer than the base, bringing the tuyere up to a sharp point at the top to prevent bridging; or the sides may be extended up to a sufficient hight to form a reducing tuyere.

The Magee Furnace Company, Boa-

ton, Mass., placed this tuyere in their large cupols, constructed to melt iron for atove plate, about 12 years ago and it has been in constant use ever since, giving excellent results in melting with coal and coke. In this cupola, which is 5 feet 4 inches diameter at the melting point, the tuyere is 9 inches wide at the base and 16 inches high. It was not thought best to extend the tuyere up to a point at so sharp an angle and the top was cut off, leaving the opening 2 inches wide at the top. This tuyere has been arranged to take the place of the Truesdale reducing tuyere, and has been made from 6 to 8 inches wide at base and 24 to 30 inches high, running up to a point. It has also been used in imitation of the Lawrance reducing tuyere and made from 3 to 4 inches wide at base and 12 to 16 inches high.

Water Tuyere.

In Fig. 14 is seen the water tuyere. This tuyere is designed to be used in cupolas or furnaces where the whole or part of the tuyere is exposed to an intense heat and liable to be melted or injured, as is the case with tuyeres placed in the bottom of a cupola or in furnaces where a hot blast is used.

The tuyere or metal surrounding the tuyere opening is cast hollow and filled with water, or one end is left open and a apray thrown against the end exposed to the heat from a small pipe, as shown in illustration. The tuyere is also made with a coil of gas pipe cast inside the tuyere through which water constantly The water tuyere is never used in cupolas when the tuyeres are placed in the sides of the cupols, but it has been used in cupolas in which the tuyere was placed in the bottom and exposed to the heat of molten iron, cinder and slag. When used in this way the tuyere is placed in the center of the bottom and is made from 1 to 3 feet long, the mouth being placed at a sufficient hight above the sand bottom to prevent molten iron or alag overflowing into it. The part of the tuyere extending up in the cupola and exposed to the heat is protected and prevented from melting by the stream of water. For this purpose the coil gas pipe tuyere is better than the hollow or spray tuyere just described.

#### Colliau Tuyere.

In Fig. 15 is seen the Collian double tuyere designed by the late Victor Colliau of Detroit, Mich., and used in the Colliau cupola. In this cupola the tuyeres are placed in two rows one above the other in place of one row as in the ordinary cupola. The first row is placed at about the same hight above the sand bottom as in the ordinary cupola and the second row from 12 to 18 inches above the first row. The first row are flat, slightly expanded tuyeres similar to that shown in Fig. 2 and are made from 2 to 4 inches wide and 6 to 14 inches long, according to the size of the cupola. The tuyeres in the second row are made round and from 2 to 4 inches dismeter. The tuyeres in the first row passatraight into the cupola through the lining and those in the second row are pointed downward at a sharp angle, as shown in the cut. The object of the second row is to furnish sufficient oxygen to consume the escaping gases and create a more intense heat at the melting point than is obtained with the single row of tuyeres from the same amount of fuel.

#### Whiting Tuyere.

The Whiting tuyere, used in the Whiting cupola, manufactured by the

Whiting Foundry Equipment Company, Chicago, Ill., was designed by Mr. Whiting, a practical foundryman of Detroit, Mich., as an improvement on the Colliau tuyere. The Whiting tuyere is a double tuyere, but differs somewhat in arrangement from the The first row are flat, Colliau tuvere. slightly expanded tuyeres and the second row are of the same shape and made larger in proportion to the lower row than the Colliau, and the two rows are not placed at so great a distance apart. Both the upper and lower row pass straight into the cupols.

#### ODD PLATES.

THE SUPERIOR STOVE WORKS OF SUperior, Wis., are rapidly disposing of their stock of stoves, and manager Green states that it is the expectation to resume operations by the first of the year.

MONARCH STOVE COMPANY, Mansfield, Ohio, will be represented during 1995 in various sections of the country as follows: Southern Ohio, Southern Indiana, Kentucky, West Virginia and Tennessee by E. II. Hucnefeld; Northern Illinois and Wisconsin by D. S. Cook of Chicago, Ill.; the State of Michigan by George W. Fl-field; Northern Ohio and Northern Indiana by Charles E. Bartenbach; Central Illinois and Central Indiana by W. H. Moore; Minnesota and Dakota by George W. Cahoon, and the New England States, Eastern Pennsylvania and New York by the Danville Stove & Mig. Company.

THE EXCELSION MFG. COMPANY OF St. Louis, Mo., have in accordance with a custom established some years ago issued an almanac for 1895. It is known as the Charter Oak, and in its general style and make up is in keeping with the publications of other yeara. It will prove interesting reading to all into whose hands a copy may come. In addition to the astronomical data contained within the covera of the almanac, will be found a great deal of what may be termed light reading as well as numerous recipes for the housewife. Another feature which adds to the interest of the volume is full page reproductions from pictures by prominent artists. Incidentally there is reference to Charter Oak atovea and ranges, with the merits of which the trade are familiar.

THE A. C. BARLEN MFG. COMPANY of Chicago, Ill., have just issued a circular, one corner of which is embellished with a little picture of quaint conception entitled "After the Bath." The text is made up largely of testimonial letters from some of those who have used Barler's ideal oil heaters. The approach side of the circular hears a opposite side of the circular bears a letter from and a picture of E. E. Rexford, floral editor of The Ladies' Home Journal, Philadelphia, together with a testimonial letter from the manager of Walter Baker & Co., Boston, and the statement that Barler's Ideal oil heaters were used to heat the beautiful pavilions of the Walter M. Lowney Company and Walter Baker & Co. on the Court of Honor at the World's Fair. It is stated that this exhibit was admired by over 20,000,000 people.

THE LANSING CO OPERATIVE STOVE, FURNACE AND FUEL COMPANY have recently established themselves at No. 502 Franklin street, East Lansing, Mich., where they are busily engaged in making patterns of their new stove. The company have under way a number of stores in which will be placed their new fire box and dampers. The company's pattern maker is also at work on the patterns for a new tubular boiler and heater, which when completed, it is said, will be a great improvement over the ordinary furnace heater, in that it will be very economical in the use of fuel

A REPRESENTATIVE of the Chattanooga Stove Company, Chattanooga, Tenn., is reported by a local paper as expressing expectations of a good winter and spring trade. The company are planning to push their sales in Texas and expect to extend their field over the entire State. They already have customers in Galveston. Collections are rather slow just at present, owing to the very low price of cotton. Thus far the present year business has not been much, if any, in excess of the volume a year ago.

THE FRIENDS in Syracuse of J. Emery Eaton will regret to learn of his death, which occurred last week in New York City. He was born in West Winfield, Herklmer County, but spent the greater portion of his later life in Utica, N. Y., where he was engaged in the manufacture of matches. He was prominently connected with the Diamond Match Company from its organization, and was for several years manager of one of its largest factories. He was also identified with business enterprises in Syracuse, and for a number of years was president of the Syracuse Stove Company.

THE CENTURY STOVE COMPANY of Dighton, Mass., are distributing a very attractive calendar for the new year. The main feature consists of a piece of cardboard measuring about 11 x 14 inches, upon which is mounted a rep resentation of a horse and rider embossed in colors. The work is done in a way to give a realistic effect, and conatitutes an attractive picture. Attached to the lower edge of the card by means of a silken cord is the calendar proper, consisting of 13 sheets, there being one for each month of the year and one for the year complete. In addition to the days of the week and month, each sheet gives the moon's phases. The calendar bears the name and address of the company, and is provided with a blue cord for hanging it upon the wall.

THE HERO gas radiator, made by F. & L. Kahn, Hamilton, Ohio, occupies a conspicuous position on the sample floor of Sam S. Utter, 113 Beekman street, New York. The base is ornamental in design and nickel plated, with a large mica illumination and jeweled decorations. The burner is of the illu minating type, placed above a copper reflector. The heating columns are of Russia iron, with a handsome nickel plated dome. Beside it is a Bantam gas stove, making a striking contrast in power and size, though equally hand-some in appearance. The Denver house of Cribben, Sexton & Co. are Western distributing agents for the Bantam Game oil stoves and Bantam gas goods, as well as the line of Game oil heating and cooking stoves. The popularity of the goods in that section, we are advised, has made it profitable to take advantage of the low freight rates in carload lots, and an assorted car has been shipped at different times.

THE EXCELSION MFG, COMPANY St. Louis, Mo., layor us with copies of their vest pocket calendar for 1895 which they are sending out to the

trade. The calendar is tastily decorated, the front cover carrying appropriate designs for the different seasons of the year. The advertising matter is confined to a small trade-mark and a reference to the Charter Oak stoves and ranges as leading all others in uniform excellence, workmanship and perfect operation.

THE FERROSTEEL COMPANY, Cleveland, Ohio, have recently purchased the patterns and good will of the F. B. Fox Register Mfg. Company of that city and will add registers to their lines of manufacture. The company state that they have found ferrosteel well adapted for the production of high grade registers, as well as ranges, for the reason that it brings out "in a superior manner the delicate ornamentation and tracery peculiar to handsome designs in registers, and the castings, light and heavy, have unusal strength."

A. L. CANFIELD, manager of the New York branch of the Danville Stove Works of Danville, Pa., reports that notwithstanding the depression in business the year closes with a satisfactory record. For the season of 1895 the company contemplate making extensive improvements in their works and will add extensively to their ranges and furnaces. They have now in course of construction and expect to put on the market in a short time a new line of gas stoves, a new four-hole range, a new line of modern furnaces, and two lines of right and left hand ranges made both brick set and portable form.

F. E DRURY, president of the Cleveland Foundry Company, Cleveland, Ohio, was in the city during the past week calling on his friends in the trade. He made his headquarters at the company's New York branch, which is under the management of H. Waterman. Mr. Drury states that the company have had a good trade this season and that the portion of their factory which was burned has been rebuilt and many improvements incorporated.

A NEAT FOLDER, handsomely embellished in bronze and green with a design of unique character, reaches us from the Fuller-Warren Company of Milwaukce, Wis. The folder announces that C. H. Conner will represent the company's interests in the territory named during the year 1895, and in due season will call upon deslers to negotiate for the agency of Stewart stoves and ranges.

A. N. BLANCHARD, rspreaenting Rathbone, Sard & Co., Albany, N. Y., visited New York the past week, and during his sojourn was the guest of Mr. Marvin, the company's New York agent. Mr. Blanchard was introduced to the trade by Mr. Marvin, and later returned to Albany much pleased with his visit.

The Dangler Stove & Mfg. Company, Cleveland, Ohio, favor us with a copy of an exceedingly attractive catalogue which they have issued, illustrating and describing the Dangler vapor stoves and ranges for the season of 1895. It is the sixteenth annual catalogue which the company have issued, and in it attention is invited to the leading lines manufactured, and also to improvements and changes which have been made since the last edition was brought out. One of the aims of the company has been to furnish the trade with a stove possessing a perfectly operating and powerful burner, economical in the consumption of gasoline. In this they state they have suc-

cecded even beyond their expectations, in their New Gem atove. This is made with the company's removable tank and other features which render it satisfactory in all particulars. The Delight cabinet range occupies the leading place, followed by the Cabinet Process range, the Dangler Process and the Surprise. A varied assortment of other atoves are then considered, closing with juniors of various descriptions. Ovens, waffle irons, torches, burners, price lists and telegraphic code are other features of the volume.

THE LEHIGH STOVE & MFG. COMPANY of Lehighton, Pa., are distributing a folder calling the attention of the trade to the Lehigh range, which is offered in four sizes. This is a six-hole construction, which has been upon the market for nearly five years and has established for itself an enviable reputation. It has sheet flue construction, large oven, patent oven door opener, triplex grate and ample flues. The decorative features are rich and the general appearance of the stove substantial and satisfactory. The Lehigh is offered in 32 varieties.

The Monarch Stove Company, successors to the Baxter Stove Company in the manufacture of Monarch vapor and gas atoves, Manafield, Ohio, are distributing to their friends in the trade a beautiful Christmas souvenir as a prelude to their campsign of 1895. The company state that they have devised a number of new and original features which will interest the trade and place the Monarch atoves in the front rank of excellence. They have a new catalogue in process of preparation, and expect to have it ready to send out about January 10. The Christmas souvenir is a card measuring  $8 \times 11\frac{1}{2}$  inches, printed in colors, the central feature being a group of little folks with the inscription, "We are happy, because our mammas cook our meals on Monarch vapor stoves." In the lower right hand corner of the card is a picture of one of these stoves.

THE FAULTLESS, No. 17, 1895, is a new range that has just made its appearance on the sample floor of Graff & Co., 208 Water street, New York. The design is one of considerable attractiveness and brightened by a polished nickel plated oven shelf. It has an oven 16 x 16 x 12½ inches, around which are flues of generous capacity. The fire box is provided with a large water back and a triplex grate. There is a sifter grate, and under it a substantial ash pan. A warming closet under the oven is another of its conveniences. The range has heavy covers and a strong top adapted for supporting the brackets for a horizontal boiler, and can be set between 30 inch jambs.

THE NEW YORK HOUSE of the Central Ollgas Company are making an attractive display of oil and gas heating atoves to invite the Christmas buyer. Their line embraces a variety of styles from the smallest lamp heater to the large powerful parlor dome heater which has proven very popular this year.

THE MONARCH STOVE COMPANY of Mansfield, Ohio, have in process of completion a handsome catalogue of their line of Monarch gas and vapor stoves for 1895. It is now expected that the catalogue will be ready for distribution to the trade about January 1. It will make mention of the company's goods for 1895, among which are several new lines, while old ones have been improved in various ways.

THE CENTRAL OILGAS STOVE COM-PANY promise the trace something of a surprise. In addition to their varied, very popular and extensive lines, they will place on the market specialties in new goods, more particularly in the line of cooking and lamp stoves, which the manufacturers say are bound to prove popular, both by reason of low prices and their many attractive and desirable features. In addition to these lines they will have something entirely new in Oilgas cook stoves, containing their new burners that are giving such perfect satisfaction. They call especial attention to their new catalogue for 1895, that they will have ready for distribution within a few weeks.

THE PROPER ventilation and heating of school rooms has, says a Kingston, N. Y, paper, since Plumbing Inspector Dunn's exhaustive report on the subject, called forth considerable attention, not only from the public, but especially among those identified with school work. Recently School Commissioner Moran has had printed circulars which he intends to forward to the secretaries and trustees of the districts, calling their attention to a system that is used with auccess in over 50 of the rural achools of Montgomery County, New York. If the school room has a good stove of proper size with zinc beneath it and a pipe connecting it tightly with the chimney, the cost of furnishing a jacket, ventilating shaft and fresh air aupply is but trilling. This system is especially appropriate for country

Two EXQUISITE calendars have been received from the Michigan Stove Company. They are composed of heavy cardboard, creased so as to stand in four folds, thus making an ornament for a mantel piece or table. The calendara are 61 inches high. Oue shows a group of dainty little maids in various attitudes, while the other shows four youthful figures, bedecked with garlands and entertained by birds. figures are painted in colors, so skillfully done as to closely resemble water colors. Along the lower edge of each card runs the calendar by months, each month framed in gilt. On the reverse side of the cards is a beautifully lithographed tribute to the excellence of the Garland stoves and ranges.

THE MICA MFG. COMPANY, 89 Fulton atreet, New York, are tssuing a circular of a portable gas heating and cooking stove. It is designed tor use in connection with a gas lighting fixture, preferably with a gas light such as is used on a table by means of a hose. It is arranged with a heating drum and also with a stand to support a vessel for cooking.

THE AURORA VAPOR STOVE COMPANY of Cleveland, Ohio, have just is sued from the press an exceedingly attractive 48-page catalogue showing the lines of gas and gasoline stoves which they manufacture. The volume is profusely illustrated, and is bound in colored paper covers, with a side title in silver lettering. The frontispiece consists of a bird's-eye view of the company's works, following which is a greeting for 1895. The company are entering upon their fifteenth year in the manufacture of gasoline and gas stoves, and state that notwithstanding the general depression in business circles during the past year they have made and sold more Aurora stoves than during any of the previous seasons. The leading place in the catalogue is given

to the Aurora evaporating range, which is shown in several varieties. Attention is also given to the Aurora generating range and to a varied assortment of junior stoves. A feature of the catalogue will be found in the special in structions given for operating the stoves made by the company. Gas stoves, ovens and miscellaneous goods occupy a number of pages, while a price list and telegraphic code complete the volume.

A RECENT ISSUE of the Evening Wisconsin of Milwaukee, Wis., says: Milwaukee Gas Stove Company have just put out a handsome and complete catalogue of the various atyles of ranges, gas heaters and grates being manufactured by the company at their extensive establishment on Erie street. The company, although not more than two years old, under their present management and enlarged scope of operations are rapidly reaching out for the best trade in the country, and a few days ago they received the contract, after a competition with all the gas ranges, heaters and grates made in the country, for supplying the large new building of flats of Mrs. K. E. P. Roberts in Chicago, who ordered for the modern building 80 of the Milwaukee Company's Perfection ranges. 80 Perfection grates, 80 Perfection radiators and 80 Perfection gas heaters, the award being given after a thorough test by disinterested parties with the makes of a large number of companies. The Milwaukee Company also received from the San Francisco Gaslight Company a request for 500 photographic views of their ornamental Perfection grate fronts and combination mantels, to be used by the San Francisco Company in designs which it desires to furnish architects in the country as being the most attractive and acceptable for use in plans for new residences. One of the great advantages claimed for all the Perfection stoves and grates of the Milwankee Company is the special devices for securing the proper gas and air pressure, which the company have reduced to a scientific perfection applicable to all kinds of varying gas main pressures. Their Star burners also come in for praise everywhere."

WE LEARN from the Paisley Stove Company, Beaver Falls, Pa., that they are closing out their stove business owing to the death, over a year ago, of Robert Paisley, and wish to dispose of their plant and patterns to some one desiring to continue the business.

The Ridoway Furnace Company have recently arranged an attractive show window display at their store, 76 Union street, Boston, consisting of a bandsome nickel plated model of the Ridgway revolving open fire pot furnace, which is placed before a striking background and revolved continuously by means of an electric motor.

WE RECEIVE from the Dayton Furnace Company, Dayton, Ohlo, a 20-page catalogue of the Abbott gas hea\*ers, ranges and burners and special gas and coal furnaces. The first Illustration is of the Abbott gas heater for use with either natural gas or coal. The next three pages show the Abbott gas ranges which are made with oven and broiler. besides top burners, and are furnished with coils for heating water or reser-These are followed by a special voirs. furnace adapted for either gas or coal, in which the Abbott furnace burner and mixer for natural gas are used. Several pages are devoted to the Progress selffeeding coal furnace, showing the parts separately, followed by testimonials.

### Trade Notes.

The mesiniss of Serios Baos, & Co., copper and sheet iron workers, New Orleans, La., who have dissolved partnership, will be carried ev. it is an ounced, by Joseph Pabs:

THE RAHWAY CAR VENTHALION COMPANY of New York, is a concern that has recently been incorporated with a capital of \$15,000. The directors are: J. B. Newcome, Frank McAuliffe and Wm. E. Newcome of New York City.

THE HERD REFRIGIRATOR COMPANY, at New Duluth, Minn, have started up their factory to make stock for the spring trade.

KERRPATRICK & Co., LIMITED, of Pittaburgh, operating the Leechburg Iron Works, Lecchburg, Pa., manufacturers of fine Sheet Iron and Sheet Steel, have lately bought out the business of J. S. Ingalls & Co. of Troy, Ohio. This concern have been making Planished Steel for a number of years, but the plant has been removed to Leechburg and some important additions made, and operations were commenced a few days ago. The product is known as "Craig Polished Steel," and was made by J. S. Ingalls & Co. for eight years at Troy, Ohio, Kirkpatrlek & Co., Limited, have also bought the patents under which Ingalls & Co. operated, and Mr. Craig, patentce of the process, has charge of this branch of the business for Kirkpatrick & Co., Limited.

A GOOD DEMAND for Galvanized Iron and Tin Plate in that section is reported from St. Louis, Mo.

A NEAT little hand book of 75 pages, containing interesting statistics relating to the history, location, manufacturing industries, &c., and other information concerning the city of New Bedford. Mass., together with a well executed map of the place, comes to us with the compliments of the New Bedford Copper Company of that city. The company manufacture Cold Rolled Patent Leveled Cornice Copper, Tinned and Polished Copper Sheets, Soldering Irons, Bolt and Bar Copper and Sheathing, &c.

THE TINWARE FACTORY of Frederick Haberman, Second atreet and Drigga avenue, Brooklyn, N. Y., which has been closed since the retirement of the concern from the Central Stamping Company, will start up again after January 1, employing about 500 hands.

THE F. H. LAWSON COMPANY, 188-190 Main street, Cincinnati, Ohio, have purchased the extensive plant of the late George D. Winchell Mfg. Company, and have added new improved machinery, increasing the capacity for turning out goods in larger quantitles. In an announcement of this aequisition they refer to the high grade of the goods made by the Winchell concern, which include Pieced Tinware, Japanned Ware, Galvanized Ironware, Toilet Ware, Water Coolers, Coal Vases, Street Lamps, Galvanized Iron Oll Tanks and other specialties.

THOMAS SANDS of Middletown, Pa., is putting in plants for galvanlzing by the "Flandera" improved process for the Marshall Foundry Company, at Troy, N. Y., and also for the Laconia Car Company, at Laconia, N. H. Contracts have been secured for three other plants in Pennsylvania and Ohio.

Galvanized iron makers in England are about to form an association for the benefit of their trade.

# TRADE REPORT.

#### The Iron Market.

Rumors of pools are exceedingly numerous. One story has it that the leading Lake Superior Ore interests have effected an arrangement by which some of the mines will close down for a consideration and prices will be advanced. In other quarters it is stated that the Orc companies have merely agreed not to sell for next year at present prices. Another report is current concerning an attempt to reach an understanding among the furnaces of the two Valleys. Then the Barb Wire makers, undaunted by their recent failure in keeping a newly born combination from prompt collapse, are again at work patching up their difficulties. In the Raii trade movements are on foot which look to clearing away possible sources of danger in the Central and Far West.

It is not astonishing that means are eagerly sought to escape from the present desperate condition of affairs. In many branches prices are lower than they have ever been before. While the volume of work is fair compared with some periods during the past two years, it threatens to fall off during the next few months. There have even been a few aigns of lack of confidence in better things to come for spring and summer.

The whole condition of affairs is putting producers into a frame of mind when they listen more patiently to proposals of peace with its prospect of modest returns on investment and for labor and skill.

In Foundry Iron reports are conflicting. Wall atreet has been informed that the leading Southern Company has 172,000 tons of orders on its books, and proposes to ask an advance of \$1 per ton. Other sellers, North and South, are not showing any disposition to heatow the flattery which imitation implies. On the contrary, Cincinnati has been quite a lively battle ground, with values irregular and lower. Philadelphia reports a somewhat better feeling.

Pig Iron.—The week has been uneventful in the New York market, there having been no sales of magnitude. Consumption in this section continues light, and occasionally a demand is even made to delay deliveries. We quote \$12 @ \$12.50 for No. 1; \$11 @ \$12 for No. 2, and \$10.50 @ \$11 for No. 2 Plain, standard brands, tidewater delivery. Southern Iron, same delivery, is selling at \$11.25 @ \$11.50 for No. 1; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$10.75 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.50 @ \$10.

Our Philadeiphia representative reports as foilows on the Pig Iron market at that center: A good deal of Iron has been taken during the past week and prices have been well maintained. The increase in production and the increase in stocks appear to have had no appreciable influence thus far, and if the market can be held two or three weeks longer there may be a chance for better prices. At present sellers meet the demand quite

freely, but there is no disposition to make concessions, so that if consumers want Iron there is no alternative but to pay quoted rates. Furnaces in this vicinity are well sold up, and as most of the Southern furnaces make similar pretensions, there is no necessity for sales that would involve concessions. The weakest markets appear to be those west of the Alleghanies, but they are not low enough to permit shipments to this market at current rates of freight. Under present conditions it is hardly likely that any upward movement can be started, but recent transactions will tend to steady the market, and it is hoped will prevent any tendency toward further weakness. Meanwhile orders are easily placed at the inside quoted rates for large lots, but on favorite brands, or for small lots, medium to outside figures are obtained for delivery equivalent to Philadelphia, with 25¢ to 40¢ less at points within a radius of 100 miles South or West:

 Standard No. 1 Foundry X...
 \$12.50
 \$13.00

 Standard No. 2 Foundry X...
 11.50
 \$11.75

 No. 2 Plaio...
 10.75
 \$11.00

 No. 1 Soft...
 11.50
 \$61.10

 No. 2 Soft...
 10.75
 \$61.10

Only a few firms in the Chicago district are reporting any business. Here and there some Iron is being bought to finish up the work of the year, but in a general way consumers are deferring purchases until after the beginning of 1895. The local furnace companies have booked so much business that the prospect of their maintaining prices is excellent. Lake Superior Charcoal continues in only moderate demand. Quotations are given as follows for cash.

and Prior and Totto un Tot i	DUNCAL		
Lake Superior Charcoal	\$13.00	0	\$14.00
Local Coke Foundry, No. 1.	10.25	0	10.50
Local Coke Foundry, No. 2	9.75	0	-10.00
Local Coke Foundry No. 8.	9.50	0	9.75
Local Scotch	10.50	0	11.00
Ohio Strong Safteners No. 1	12.50	0	<b>13.</b> f0
Southern Silvery, No. 1	11.50	0	11.75
Southern Silvery, No. 2	11,25	0	-11.50
Southern Coke, No. 2	10.25	0	10.50
Southern Coke, No. 3	9.75	0	10.25
Southern, No. 1, Soft	10.25	0	10.50
Southern, No. 2, Soft	10.00	0	10.25
Alabama Car Wheel	17.50	0	18.00
Jackson County Silvery	15,50	0	16.00
Other Ohio Silvery	14.25	0	14.50

Advices from Pittsburgh indicate that the Pig Iron market is unsatisfactory, both as regards demand and prices. Foundry Iron is duli in demand and weak in price. Reports are going of sales of several round lots at extremely low figures. Quotations are as follows:

No. 1 Foundry..........\$11.00 @ 11.25, Cash. No. 2 Foundry.......... 10.50 @ 10.65

There has been an increased demand for Pig Iron in the Cincinnati market during the week under review from large buyers, resulting in liberal sales, and there are still some large contracts pending. But while there has been more activity there has been a weaker feeling; at least there have been lower prices accepted to move round lots. Outside of the Pipe works and a few other large foundries who have been free buyers there has been some disposition on the part of consumers to delay deliveries, and this fact has had a tendency to aggregate the accumulation of some grades and given rise to the disposition to shade prices on such lots. But wherever buy-

ers have found a yielding market they have bought more liberally, the result being that the volume of business during the week has been considerably increased. Pipe works have purchased from 2000 to 3000 tons and other large general foundries have bought 3000 to 4000 tons additional in 1000 ton lots. There have also been several sales of 500 to 600 ton lots, as well as an increased number of small purchases of both Northern and Southern make. It is stated that the Southern Pipe Works, which are melting heavily, are in the market for between 20,000 and 30,000 tons of Iron, but these contracts are usually placed direct with the furnaces. The fact, however, that large buyers are entering the market upon the heels of an already large consumption gives an improved tone to the market, making buyers freer purchasers and counteracting the influence of irregular prices. Quotations are as follows:

Southern Coke, No. 1	\$9.75 @	\$10.00
Southern Coke, No. 2	9.00 @	9,25
Southern Coke, No. 3	8,50 @	8.75
Ohio Soft Stone Coal, No. 1	14.50 @	15.00
Ohio Soft Stone Coal, No. 2	14.00 @	14.50
Lake Superior Coke, No. 1	11.75 @	12.25
Lake Superior Coke, No. 2	10.75 @	11,50
Hanging Rock Charcoal, No. 1	16.00 @	16.50
Hanging Rock Charcoal, No. 2	15.50 @	16.00
Tennessee Charcoal, No. 1		13.50
Tennessee Charcoal, No. 2	12.00	12.50
Bessemer	11.65 @	12.00
ctandard Southern Car Wheel	15.75 (2	16.75
Lake Superior Car Wheel and		
Malleable	14.85 @	14.75

Transactions in Pig Iron in the St. Louis market have been unusually light during the past week. Inquiries are scarce and it requires persistent work to close sales. No. 2 Foundry is firmly held at \$7, f.o.b. Birmingham, notwithstanding the effort made in some quarters to create the impression that this price can be shaded. No large business is anticipated until after the turn of the year, and unless all signs fail a higher range of prices will prevail after the new year sets in. Sales during the past week are hardly worth recording. We quote as follows for cash, f.o.b. cars St. Louis:

#### Metal Market.

In the Metal trade Tin has again declined under heavy speculative transactions. There have been round sales at 10¢ for Lake Copper, to consumers, for the first quarter of 1895. The story that the Anaconds Company had agreed to moderate its pace to the rate of production of the Calumct and Hecla is denied. Lead has been more active than for some time past.

Pig Tin.—Prices have almost steadily declined during the week. From top prices reached last week a decline of about  $0.50\phi$  per pound has taken place in the wholesale rate. In speculative circles the turnover

of contracts was large and involved The amount 1,000 tons or more. The amount of actual tin that changed hands was doubtless much less, yet problematical. That there is enough to go around is very clear, and that future supplies will be abundant is evidenced in the advices of Straits shipments during the first half of the month. These aggregated 2540 tons, of which 1900 were destined to London, 120 to the United States and 520 to Continental Europe. Liberal deliveries to consumers have been made on former contracts, but new purchases have been moderate, although small lots were quite frequently quoted out at prices very close to those prevalent in the speculative line for 5 tons and larger quantities. Late in the week the market bore a somewhat firmer aspect, owing to better London advices, but prices made no noteworthy advance.

Copper.-There is no confirmation of a European report that the Anaconda Company have decided to reduce their output one-half during the coming year. Evidence is wanting also of anything in the nature of a general agreement among producers. That the output during the winter months will be below the average is very probable, however, and that fact, along with a firmer stand taken by the mining companies, has led to some further advance in prices. Quite a liberal business has been done with home consumers, involving deliveries during the first quarter of the coming year. Retail business has been very moderate and prices show no variation from those quoted for the past few weeks. Lake Ingot in small parcels weeks. Lake ingot in small parcels from store is sold at about 10½¢ % lb. There has been a very fair business doing in Common Casting Copper. The demand for Sheet Copper is tame and prices unchanged.

Lead.—Dealings have been on a somewhat more liberal scale, but at slightly lower prices. Probably 1000 tons were sold here for January and later delivery. American Pig. In small lots, sell from store at 3&\$\phi \end{array} \text{3} & 3&\$\phi \text{7} & 1\text{1}\$, with a fair run of order, though mostly of comparatively small proportions.

Lead Pipe and Sheet.—Lead Pipe manufacturers report that the demand for their product seems to be improving. The works in this section are generally busy, and prospects for the near future are regarded as more promising, both for the volume of business and for prices. The list prices for Pipe and Sheet are well maintained in this market.

Spelter.—There has been no improvement in business or in the demand, and the market shows poor form at the moment. Consumers are buying very indifferently, and prices exhibit no change.

Antimony. — The market remains quiet, with prices for small parcela steady at 9½¢ for Cookson's and 8¢ for Hallett's.

Tin Plates.—Little business is passing, except in the shape of small retail purchases destined for immediate consumption. Early in the week a little business was done in future deliverles, and the inquiry in this field showed some increase; but the terms offered by would be buyers were in the main so far below the views of holders that the results were hardly worthy of mention. The stagnation that usually marks the last weeks of the year in the Tin Plate market has settled down thereon, and little or no busineess is looked for before the turn of the year. Transactions are, if anything, rather below the aver-

age for the season. Prices continue rather easy and stocks moderate. The wage question is still unsettled on both sides of the Atlantic, so that the cuttook is wrapped in a mist of uncertainty

Advices from Chicago refer to the Tin Plate market in the West as follows: The importers of Tin Plates have recently named extremely low prices here on lots for importation. The foreign manufacturers are doing their utmost to retain this market. Tin Plate freights from Swansea to Western points are as low as ever, notwithstanding the recent published withdrawal of through freight quotations by transportation companies. The domestic makers, however, are getting their works in full operation again, and the result of the contest will hardly leave the foreign Tin Plates in possession of the field.

A special London eable dispatch of December 19 to The Iron Age reports on the British Tin Plate market in the following terms: Tin Plate has been rather dull, and the market is weakish at last week's prices. There is a fair inquiry for forward deliveries, but buyers' offers are so much below makers' views that the makers prefer to wait. Stocks at shipping points are increasing in the face of quite heavy outward movement. Sellers' quotations at Swansea are as follows:

Bessemer Cokes, IC 14 x 20		
Siemens Cokes, IC 14 x 20		10
J. B. Steel Cokes, IC 14 x 20		
Ternes, 20 x 28	18,6 @	21/
Charcoals, IC 14 x 20	10,6 6	12, 6

Sheet Iron.—A moderate business only is being done in Black and Galvanized Sheets. The inquiry for future deliveries is fair, and a number of contracts for material in the first months of the coming year are pending. While prices show no quotable change the market is somewhat weaker in tone.

### Chicago Report.

Scrap.—Business is very quiet, with the end of the year approaching. Dealers quote their buying prices as follows, Chicago delivery:

D		Don H
	iet ton.	
No. 1 Wrought Scrap	\$7.00	
Machinery Cast	11,00	
Malleable Cast	5.50	
Stove Plate (free of burnt)	4.25	
Burnt Iron and Grate Bars	3.00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&c	3.00	
Old Boilers—whole (Iron)	3,00	
(Iron)—cut in single	0.00	
Sheets and Rings.	5.00	
Sugets and Poiler		
Old Gas-Pipe and Boiler	5.00	
Tubes	3.00	
Cast Borings		
Turnings	4,00	
Horseshoes	7.50	
Copper Bottoms		6 ¢
Copper Clips and Beavy		7 0
Heavy Brass		6 0
Light Brass		8 4
Pipe Lead		2166
Tea Lead		2 ¢
Zinc		21/40
Rubber		<b>4</b> 36¢
		11.

Anthracite.—Dealers report very little business doing. Carload lots of 12 net tons, or over, are quoted as follows:

10 48 .	F	Egg, Sto.
	Grate.	and Ch.
Chicago, Ill		\$5 (0
Milwankee, Wis	4.75	5.00
Kansas City, Mo	7.95	8,20
Conneil Bluffs, Iowa	7,95	5,20
Lincoln, Neb	5 10	8,35
Sioux City, Iowa	7,95	8,20
Aberdeen, S. Dak	5,00	8,25
Dubuque, Iowa	6.05	6,30

		-
Madison, Wis	6.15	6,50
St. Paul, Minn	8 4 10 1 1	7,50
Burlington, lows	7.75	7.56
Des Moines, Iowa	615	6,30
St. Joseph, Mo	7 100	4,20
Leavenworth, Kan	7.95	5,20
Omaha, Neb	7.95	1, 20

Colorado Anthracite.

COLORADO FUEL & IRON COMPANY.

Denver	\$8,00
Pueblo	5,(K)
Colorado Springs	5,00
Leadville	5 00
Cheyenne, Wyo	10.00
All points between Denver and	8.85
Missouri River	6,50

#### CONDITION OF THE

## Hardware Trade.

THE TRADE is beginning to feel more decidedly the effect of the near approach of the holiday season and the end of the year. Manufacturers are therefore intermiting for a little their efforts to secure trade, their representatives being for the most part withdrawn from the road and their own activity devoted to the closing up of the year's annual inventory. Some of the representatives of the jobbing houses are still on the road, but most of them will be home by the end of the present week. Retailers who carry goods suited to the holiday trade are occupied principally on these lines, but winter goods come in also for a fair share of attention. The moderate weather which has prevailed in many parts of the country has, however, had the effect of diminishing somewhat the movement of this class of goods. In the matter of prices there is little new to report, the market continuing to be characterized by a tone which is rather weak; but connected with this condition there have been few declines and in some lines a slightly better feeling is perceptible. The unsatisfactory condition of the Iron market does not tend to strengthen the tone of Hardware products, but the possibility of a better state of things, owing to higher prices of ore, is deserving the attention of such members of the trade as are watching closely the course of things influencing the cost of goods.

cost of goods.

Advices from Chicago.—Some of the Shelf Hardware jobbers report a slight diminution in orders, but others state that their volume of business is fully as large as it has been. Much trouble is being experienced by some houses in taking their inventory. on account of the continued influx of good business. The metal trade is par-ticularly active. Tin Plates, Galvanized fron and all sorts of metal products are moving out quite freely. Seasonable goods are also in excellent demand. The holiday trade keeps up remarkably well. Salesmen have not yet come in from the road, but next week will see them arriving from all quarters, and it is expected that the Hardware business will then be practically ended for this year. Considerable interest is being taken in the matter of price revision, which usually occurs before salesmen are started out again, but of course it is not known yet as to what the nature is not known yet as to what the nature of this revision may be. A few lines will undoubtedly show a little stiffening owing to the better working of combinations, while perhaps other lines may show a slightly lower tendency on account of the weakening in staple goods. The Heavy flardware trade has experienced an improvement during the past week owing to an increased demand from manufacturing consumers. The volmanufacturing consumers. The voladded to this there had come the usual

demand for season goods, such as sleigh material, the Heavy Hardware trade would have been classed as most excellent.

#### Notes on Prices.

Wire Nails.—The market for Wire Nails shows but little change since our last report. There is a good deal of inquiry and a fair volume of business. The mills, however, are not as full of orders as they would like to be, as they are desirous of having enough on their books to occupy them during the next month or two. Some of the large buyers, however, notwithstanding the low prices current, are disposed to hold off, apparently not being apprehensive of an early rise in values. Most of the orders which are placed are to supply current demands, and in many cases they indicate that the stock in merchants hands is light. This is niquestionably the policy which the trade are disposed to pursue. Small lots from store in New York are held at \$1.15 (a) \$1.20

at \$1.15 (a \$1.20.

Advices from Chicago.—The local trade appears to be almost entirely in the hands of local manufacturers. They have booked heavy orders for dellvery during the first three months of next year, and jobbers are now quoting their customers for future delivery on the basis of present prices. Outside manufacturers are asking somewhat higher prices for Western business than those prevailing in this immediate vicinity. They say that their inquiries have latterly been improving, and their business from other sections is ateadily growing larger. The demand from jobbers for mixed carloads of Barb Wire and Wire Naila has recently been quite heavy. Quotations are continued at \$1.05 for small lots from stock and \$1.05 for small lots from factory.

Cut Nalls.—The condition of the Cut Nall market is similar to that of Wire Nails, the current business being limited to the early requirements of the trade. There is little change in the matter of prices. Small lots from store are quoted at 90 to 95 cents.

Advices from Chicago.—This branch of the trade continues in precisely the same condition as reported for several months. Orders are small, but continue to be received with regularity. Quotations are unchanged. Small lots from stock are conted at \$1

from stock are quoted at \$1.

Barb Wire.—There is, considering the advanced stage of the season, a fair business doing in Barb Wire, with little change in current quotations or in the general tone of the market. The quotation of \$1.85 to \$1.96 for Four-Point Galvanized in carload lots at mill still represents the market, but concessions are made in special cases.

Advices from Chicago.—Manufacturers report a much larger trade, capecially on the higher grades of Barb Wire. These grades have been in remarkable demand, considering the difference in price as compared with standard Wire. Manufacturers of the latter have also been able to secure a great deal of business, and their output is practically covered for at least the first three months of next year. Quotations are continued at \$2.05 for small lots from factory, Several large transactions have recently occurred on Plain Wire for delivery during the early months of next year. The character of these transactions is such as to indicate that some of the shrewdest buyers now believe that the market has touched its lowest point.

Cordage.—As usual at this season there is very little doing, and the market

is sluggish and quotations are to a large extent nominal. The market is also without atrength and ruling prices are more or less freely shaded. The market is represented by the following quotations, which are subject only to the discount of 1½ per cent. for cash, terms f.o.b. factory or New York:

	(	ents per m.
Manila, 7-16 in base		71/ to 71/2
Sisal, 7-16 in base		41, to 4%
New Zealand, 7-16 iu base		

Old Metals —The demand for Old Metals shows some material improvement, but prices are virtually unchanged. Smelting and refining works in this vicinity are fairly well supplied with material, but look for a greatly enlarged business after January 1, and are consequently more ready to buy. There is little doing in Scrap Iron just now, but a few inquiries exist for deliveries after the turn of the year. Prices are ateady. The following quotations represent the current rates paid by dealers in the city:

Heavy Copper
Light and Tinned Copper 2 1 61/6
Heavy Brass 10 484
Light Brass The 384
Lead 1 15 28/4
Tea Lead 1 1 21/40
Zinc 1b 2½8¢
No. 1 Pewter Ib 10 0
No. 2 Pewter 10 51/20
Wronght Scrap Iron. # 27088
ton \$7.50 @ \$8.00
Heavy Cast Scrap gross
ton 7.50 @ 8.50
Stove Plate Scrap P gross ton 5.00
Burnt Iron gross ton 3.00

Old Rags, Paper, &c.—Demand is fair and prices aubatantially the same as those quoted last week. New York dealers' purchasing rates are as follows:

	No. 1 White Rags	īħ	3	a	340	ż
	No. 2 White Rags	īb.	214	<u>a</u>	21/6	e
	Mixed Rags	Th	8/	0	1 6	1
	Blues and 3ds	ħ	11%	in	18/6	t
	Hard Sized White Shavings	ħ	21%	ã	21/	¢
	No.1 White Book Snavings #	ñ	18%	ä	21%	ė
	No.2 White Book Shavings	Th.	i	ã	112	é
			•			
	Light Book Shavings	Tr.	7/8	a	1 8	á
	No. 1 Mixed Shavings	D	78 5/	<u>w</u>	8/4	4
	No. 2 Mixed Shavings	Þ		6	112	é
	No. 1 Printed Books					
	Ordinary Mixed Books	В		(U)	2-5	ž
	Newspapers			0		
	No. 1 Manila Paper	D			1	
	No. 2 Manila Paper			w	34	ž
	Bogus Paper	Þ		0	. ×	
i	Common Paper			w	3.5	
	Straw Chips				%	
İ	Binders' Clippings	Ъ		_	3/3	9
l	Jute Butts	R	11/6	(a)	1%	9
i	No. 1 Jute Bagging₩		1		11/4	
Į	Mixed Bagging		1/4			
	No. 2 Bagging	ľ	- 34	0	- 91	ø
١	Hemn Twine	11	2	@	27	0
١	Manila Rope	, D	5 2	$\alpha$	22%	şφ
ı	Jute Rope	ц	11/6	Œ	1 1%	Ç
ļ	Mixed Rope	D	1 1/4	0	<b>¼</b>	4
J						

Old Rubber.—Business is excellent, and prices in this market show some advance over those lately quoted. Dealers' pay about as follows, New York delivery:

Car Springs, ton lots, # D \$1.03%	(a)	.04
Rubber Shoes, carloads, de-	•	051/
livered at factory, # b	v	.0074
Rubher aboes, less than car- loads, # Ib	a	.048/
White Wringer Rolls, # 15	0	.03%
White Syringes, # b	0	.03%

Surveya are being made for the line of a new railroad to be constructed from Santa F6, near Guthrie, Oklahoma Territory, east through the timber and coal regions of the Indian Territory, to Fort Smith, Ark., with the idea of eventually extending the road to Memphia on the East and Albuquerque on the West. The backers of the scheme are said to be financially strong.

#### CONTENTS.

	CONTENTS.	
г.	itorials: PAGE.	
	derry Christinas	
	Adding a Profit 31	
	Economical Waste 31	
	Agricultural Conditions 31	
E	raudulent Shipments 81	
	he Letter Box—	
	The Countinents of the Season 32	
	The companients of the ceases with	
	Rusting of a Tiu Rouf	
	Water Fails to Run Promptly 32	
	Pressure Bursts Old Work	
	Insufficient Air Supply	
	Heating from Kitchen Boiler 33	
	troubing from teneded bones.	
	laking the Discount	
0	Heating and Plumbing School Build-	
	iogs	1
	Heating Notes	
	Describe Hoteland	
	Listing Dilling St. 111	
,	improvements in discussions and	•
1	The Retail Store— Store Arrangement Illustrated 3	8
	Divice Militage Mediti Milabeta and Control	9
	21 Cuique Window Displays 12144	
	Hero Double Action Ice Cream Freezer.  Illustrated	9
	Industraced In International Control of the I	19
	Religion on Cam.	0
ĺ	The Monatch O tea, Indistruction	U
	Improved White Mountain Freezer.	10
Į	The control of the co	10
l	memoralian iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	10
	laventory manage it is it is it.	1
l	Taking Crock III	12
١	talianted I technical can and troops	12
١.	Plumbing and Gas Fitting—	•
	-	43
		43
1	Empire Double Acting Force Pumps.	
Į.		43
L		44
1		45
ł		45
1	Reofing and Cornice-	
ı	Pattern for a Pediment Miter on an	
١	Inclined Wash. Illustrated	46
	Flashings	46
ļ	Electric Lighting in London	47
1	Bimetallie Telephone Lines	47
1	Tin Plates-	
1	Criticism of Welsh Methods	48
1	Serap	48
	Heating and Plumbing-New Work and	
	Contracts	49
1	Stove Trade Notes—	
	The New York Stove Trade	50
:	The Philadelphia Stove Trade	50
.	The Obio Stove Trade	60
:	Constructive Features of the New	
١	Process Vapor Stove. Illustrated	51
ł	A llogus Check Man	51
	Hiring Out of Gas Stoves by Gas Com-	K4
ا ،	padies	51 52
8/8/8	Cupola Tuyeres.—II. Illustrated Odd Plates	53
Ñ.	Odd Plates	55
-	Trade Report—	,,
e	The Iron Market	56
đ	Metal Market	56
- '	Chicago Report	57
	Condition of the Hardware Trade	57
e	Notes on Prices	58
d	Metal and Miscellaneous Prices	59
ı. A	Labor Exchange—	
y	Help Wanted	61
,	Situations Wanted	61

# THE METAL WORKER.

### NEW YORK AND CHICAGO.

Saturday, December 29, 1894.

DAVID WILLIAMS, - PUBLISHER

#### BUSINESS OFFICES:

BRITISH AGENCY: The 1ronmonger, 42 Cannon street, London, England.

#### Comfortable Temperature.

In the heating of any building in which persons of various ages and temperaments, conditions of health and home surroundings are congregated, there will always be found a considerable difference of opinion as to the most comfortable temperature. The young, healthy and vigorous may find a temperature of 68° as comfortable as the old and feeble find one of 75°. Just how to meet these diverse conditions and opinions is one of the most serious questions presented to the heating engineer. It is stated that the National House of Representatives is the most difficult room in the United States to heat. There are gathered men from North and South, men brought up under the most varied conditions, and, above all, men who have the right to call the attention of the House to any discomfort of their own, and thereby make it the more pronounced. Public opinion, however, seems to accept 70° as a fair average, against which no one should complain. The effect of lower temperatures may be easily studied in a crowded theater without personal conversation with the audience. At a temperature of 66° to 67° a few will be noticed as throwing coats or cloaks over their shoulders. At 65° the practice becomes quite general, while at 62° to 63° the general discomfort becomes decidedly evident, and its continuance or a still further drop in the temperature is likely to result in unpleasant complaints at the manager's office. In an ordinary theater, completely filled, the animal heat of the audience is sufficient to raise the temperature of the room 6° above the normal—70°. It therefore becomes necessary to admit the air at least 6° lower in temperature than would be the case were the theater empty. When it is warm ontside this empty. When it is warm outside this means a reduction of the entering temperature to 64° or 65°, and consequently the greatest care in the introduction of this air so as to avoid drafts or the placing of a person in an atmosphere which has only this low

temperature. The most complete subdivision of the air supply is then absolutely necessary to success.

Inadequate Safety Valves.

In the spring of 1889, an animated discussion in The Metal Worker regarding the safety of low pressure systems of steam heating was conducted by correspondents in various parts of the country. The fact was brought out that serious accidents with this kind of heating apparatus are exceedingly rare, and that when explosions occur they are attributable almost universally to want of skill in construction and erection. In our issue for December 1 such an accident is recorded, which was primarily due to two causes. There was a faulty design of the boiler and a deficient connection for the safety valve. That a safety valve should be of a size to relieve a boiler of all surplus pressure is so obvious as hardly to need saying. The relief of surplus pressure by permitting free escape of steam is its sole function, and if too small to perform this function it becomes a worse than useless attachment, because it gives a tacit promise of socurity under conditions of insecurity. Since the action of a safety valve is a perfectly simple thing to understand, and easy rules for proportioning such valves to the steaming capacity of boilers are found in every hand book on steam engineering, there is not the slightest excuse for putting on a valve which is too small. In any case where this is done there is culpable neglect or culpable ignorance. Usually safety valves are supplied by the manufacturers of heating boilers as part of the appurtenances thereof, and all the steam fitter has to do is to connect the valve and adjustait. It is questionable whether many steam fitquestionable whether many steam nt-ters, in putting on safety valves, ever give a thought to their sufficiency; they usually take this on trust. But there are cases where boilers are supplied with safety valves by steam fit-ters independently of the manufact-urer, and the case in point seems to have been one in which a too small connection was made. That accidents to low pressure steam heating appara-tus, in spite of the prevalence of ignorance and carelessuess, are so rare, is perhaps the best evidence of the inherent safety of this method of warming buildings.

#### Nomenclainre.

"What's in a name? L'mburger cheese by any other name would smell as rank."

This quotation, which shows both erudition and invention, is selected as a text for this "I say," which is not intended in mercantile phrase "to supply a long felt want," for if so it must—while acknowledging the constant demand for names and the backneyed use of our present stock—offer or suggest some of original coinage. It is sometimes less work to produce the animate or inert construction than to

find a suitable name for it. This difficulty is of early origin, if we may believe tradition, which says that Adam, the first, set out to furnish family names for his descendants. Although he had a monopoly of the job, with a clear field for imagination, he became weary of dictation after a week or two of close attention to business and finished the contract by saying: "Let all the rest be named Smith."

Everything must have a name, from the new baby to the latest invention, and these are not seldom missits which the recipient is not responsible

for.

"What d'ye s'pose I call my dog Bose' for?" said Hayseed. "Don' know'm sure," said Clod. "Well, the reason is 'cause that's his name." This answer to the conundrum was conclusive if not satisfactory and as good as a majority of spensors could The subject of nomeaclature has so large a spread that we must take a reef in it and consider only its application to a limited number of things, among which the "calling" of domestic articles is prominent. Of course every cooking and heating apparatus needs a distinguishing appellation, but why so named is a thing "no fellow can find out," except for Hayseed's reason. Several of the modern catalogues seem to have adopted special family names to which are prefixed such pronouns as fancy may dictate, or being established like a keynote in music any desired tune may follow. But if the maker chooses to call his product by the generic name of "Nut" with the sub-divisions of Walnut, Peanut, Chestnut. &c., we may, perhaps, find the question of why do ye so? a hard nut to crack.

When we sit in zero weather by some glowing east fron raiser of temperature and read its label of Scorcher, Torrid, Blister, or possibly Sheel, there is a sense of fitness which tends to contentment; but if instead we read Trailing Arbutus, or find the kitchen range, redelent of onions and cabbage, marked Heliotrope, it may appear slightly inharmonious to our seithetic sensibilities. Whether or not the customer is impressed by the name is an open question, but if so it is usually as a result of some other one's experience and recom

mendations.

We sold a stove once which suited the bnyer in all points of construction and operation. But," said he, "If I had noticed the name in time I would not have had i brought into the house." The name was "General Grant," and the customer a rabld opposition politictan. Our limited experience has not shown us such incongruous titles as the Ice Berg, Arctic or Freezer, but unless we return to the names of the stoves of our daddies the demand will continue to be supplied with something equily disco dant. This paper growl does not question the right of any one to call their products, whether stoves or children, by what names they please, and the writer would suggest as an unworked mine of names the labeled bottles and drawers of the druggist. These would be as appropriate as the present list, and perhaps more suggest. ive of internal caloric.

Fossil

# THE LETTER BOX.

Insufficient Air Supply.

From E. E. Dunning, Milwaukee .-In regard to the difficulty experienced A II." of this city, in heating the residence with a furnace, described in The Metal Worker, December 15, I think If the readers of The Metal Worker could know of the details it would be easily solved. It would be plainer if "A. II" had made a diagram "drawn to a scale" of the building, showing lo cation of furnace and registers and how the pipes are run in the basement and locations of grates and ventilating flues, doors and windows, also walls in basement, as all these are material in the workings of the furnace; also dimensions of the furnace. It is evident that there is not a sufficient supply of cold air, although the duct enters from the right direction. The duct should be two thirds of the combined area of the hot air pipes, or at least 15 x 36 inside measurement, with a tight regulating damper and a door that can be opened into the basement. Many times the cold air will not flow into the duct during winds of certain directions, and if the furnace basement is large and kept clean during such times the sir can be taken in successfully through this door. A basement window might be opened a little. I have found a cold air room in the basement made of dry matched lumber and tight, even no larger than 4 x 6 feet square, a much surer means of supplying the furnace with cold air at all tlmes.

I note that in this residence all doors are opened into the reception hall, both above and below, allowing a free circulation of air, in which case a circulating register from the hall is a very good thing; but as you cannot successfully take the air from the hall and from the outside at the same time, this register should be equal to two thirds of the combined area of the hot air pipes, or a 24 x 30 register and a of equal capacity, constructed as near air tight as possible. I prefer to take cold air from outside to under the base ring of a furnace, and from inside above the base ring. The from inside above the base ring. 14 inch pipe was not much of an improvement. I should place a pit under the base plate of a furnace wherever pessible, as I believe the air is better distributed around the furnace. In my opinion the filling up of the plt was a move in the wreng direction. It may be that some of these hot air pipes run from the furnace basement through a brick wall into a colder basement so the air in the pipe is chilled. It is often very difficult to carry the heat under these circumstances. Asbestos paper, covered two or three thicknesses, would help somewhat; but better still is the double pipe, both air tight, with about an inch air space between all around and the outside pipe open into the furnace basement. Angles in hot pipes should be avoided. If necessary, should be near the surface. If this furnace is not centrally located and the registers placed so the hot air pipes are short and equally distributed around the furnace, there could certainly be an improvement in this way. Locations would also have

much to do as to whether the furnace was really of sufficient capacity. I think if "A. II." will use such of the above suggestions as will apply to this building he will have no further trouble.

From "Justice."—In reading the troubles of "A. II.," at Milwaukee, Wis., in reference to the furnace and your advice to him, in The Metal Worker, December 15, we are somewhat amused. He does not state whether the ventilating openings are upstsirs or down cellar, which is very important. Grate openings are the best ventilators known when fire is burning in them. Your explanation as to the supply of cold air is correct, or in accord with our experience. The suggestion as to lack of space between the raditor and casings is worthy of close investigation. In our opinion the openings to the ventilators should be at the floor, or, if not, they should be closed at certain times in order to get the rooms warmed. We have followed this industry for many years and frequently have had much trouble in getting good results. In one instance the writer bought a lot of toy balloons and took them to a church where we had placed a number of hot air furnaces. After firing up we dem-onstrated the action, or direction, of the air currents to our full satisfaction. There is much to be learned by actual experience in this direction, and we find that there are no two furnaces that will operate alike, although the houses where they are placed may be the same s'ze and shape. Air currents make quite a difference. In this locality our winds come from the west and northwest, and we advise taking the outside air supply from the east side of the house, but have had much better success by taking it from the halls and exhaust ing the cold air from the inside in this manner. This gush about pure sir is all moonshine, as the writer knews by 20 years' experience in his own home.

## Kerosene as a Wood Preservative.

From G. S., Summit Station. N. Y.—Can any of the readers of The Metal Worker give me information as to the effect of kerosene oil on wood as a preservative agent? I wish to use 2 x 4 inch hemlock for posts driven into the ground a depth of 2 feet. Would a mixture of kerosene oil and coal tar be better than either alone? Would crude or refined oil be the best?

#### Name of Chimney Partitions.

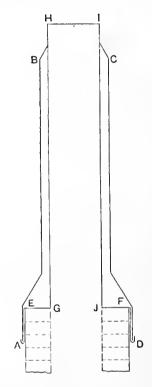
From A. A., Brooklyn, N. Y.—What is the proper name of the partition between the tlues of chimneys? If it is "with" I cannot find it in Webster.

Answer.—Perhaps the reason our correspondent did not find the word in Webster was because of the spelling he gave it. In the international edition of Webster's dictionary he will find that "withe" is in architecture a partition

between flues in a chimney. We have also consulted an old architectural dictionary in which this passage occurs, under Chimneys: "When there are two or more chimneys in the same wall, the divisions between them or the solid parts of the brick, stone or metal are called withs."

#### Double Chimney Top.

From E. A. B., Mayville, N. D.—I find many articles in the Letter Box that are of value to the tradesman, on account of the wide range of subjects



Double Chimney Top.—Fig. 1.—Form Suggested by "E. A. B.," Mayville, N.D.

treated. Wishing to return some of the favors received, I submit to the readers of The Metal Worker a double chimney top I have been making for a number of years. This top does away with all condensation, and has given satisfaction when used. As shown by the inclosed sketch the top is made double throughout. I would like to be informed if this kind of chimney top has been made by others.

Answer.—In Fig. 1 is shown a sectional view of the top, as derived from our correspondent's sketch. A B C D represents the outer part of top, and G H I J the inner. The upper part of chimney is covered by iron, as shown by A E F D. The outer part of top is joined to this iron, as shown at A D, while the inner pipe is connected at G J. The two pipes can be connected at the top by a flaring collar, as indicated at B C. In The Metal Worker of

March 2, 1889, there was published an engraving of a double chimney top from "S. S.," Cincinnati. This top is shown in Fig. 2, and, while it is made double, the parts are joined in a dif-

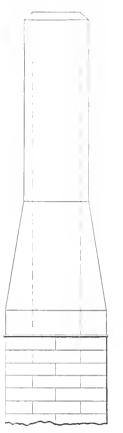


Fig. 2.-Form Suggested by "S. S.," Cincinnati.

ferent manner. The description he printed was as follows: Chimney tops as usually constructed are defective, as during cold weather the smoke is cooled

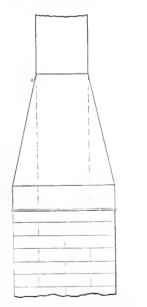


Fig. 3.—Form Suggested by "A. G.,"
Philadelphia.

to such an extent as to interfere with the draft, or with some kinds of fuel the moisture in the smoke is condensed, and soon eats away the iron of which the top is made, dissolves the mortar in the chimney and perhaps spoils the

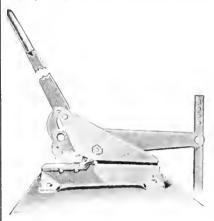
roof. This may be a rather gloomy history of the chimney top, but in many cases it is true. In The Metal Worker of January 19, "A. G.," of Philadelphia, describes a double chimney top (see Fig. 3) that partially obviates this difficulty, lnasmuch as the lower part of the top is made double, but the pipe above the base is single. This form of top is preferable to those single tops made to go over the chimney, as the original size of the flue is retained, and there is no enlarged space above the top of the chimney to impede the draft. It would appear to me that in a chimney top, properly constructed, the pipe as well as the base should be made double, as shown in the engraving, Fig. 2; then the inner pipe would be protected from the cold, and being surrounded by warm air the draft would be greatly improved. The inside pipe could extend into the chimney, as shown by the dotted lines, and by having a flange riveted on a level with the top of the brick, by placing mortar on the top of the chimney before the top was put on a tight joint would be the result. The space between the two pipes at the top should be closed as shown, and any kind of cap desired used to prevent wind or rain from entering.

#### Is It a Leak?

From JNO, Charleston, W. Va — When I read a letter in your issue of December 1 from a subscriber asking why a column of mercury standing 24 hours fell 2 inches, I sighed a sigh of nours ieil z inches, i sighed a sigh of satisfaction and thanked my Maker that during my struggle of 12 years with gas piping I never had met a man who had the littleness to require a test of over 15 minutes. If the mercury stands at a given hight for from 15 to 20 minutes and does this repeatedly, there is no leak that any man can find or is no leak that any man can find or detect with any appliance that I have knowledge of. I often have had my men report to me that the mercury, after standing some time, will rise if the atmosphere became warmer while we were testing. Just so will it fall toward evening, if it is pumped up during the afternoon or while the atmosphere is warm, which goes to show that the expansion or contraction of the air in the pipe affects the mercury. I once had a leak in a small gas job that two men worked faithfully for ten hours to find. The mercury would fall about 3 inch in 15 minutes, showthat there was a very small leak. We could detect a slight smell of ether on a piece of \(\frac{1}{2}\)-inch pipe, 18 inches long. We lathered it but could get no bubble. I turned the gas on it but found that it would not burn through the hole. I had the pipe removed and a sound one put In. This did the work, effectually euring the leak, and proving that a very slight leak on a mercury column will show in a short time. afterward tested the defective place of pipe, and under 40 pounds water pressure it would sweat a drop about once every minute through a hole that you could not see. Our friend has a tight job, in my opinion, if the mercury will stand 15 minutes with a round bead on top. I trust he will tell us how he got top. I trust he will tell us how he got his money for this job.

#### Combination Shear.

R. M. Clough, Tolland, Conn., is just placing on the market a new bench shear, which can be furnished in either style—as a hand or foot power shear, or a combined hard and foot power shear. It is easily changed from one to the other by simply withdrawing a pin. The hand shear will cut 1.5 inch stock and the foot shear 1/2 inch stock. The shears are made with 4 and 6 inch blades, the former being recessed so that wide sheets can be readily cut, the edge passing through the recess. There



Combination Shear.

are two gauges, one for slitting up to 6 inches wide and one for squaring and angular work, the table being graduated into  $90^{\circ}$ ,  $75^{\circ}$ ,  $60^{\circ}$ ,  $45^{\circ}$  and  $30^{\circ}$ .

Mr. Monditt of Caen, France, has published a process for bronzing copper, which is as follows: After the metal has been secured, it is covered with the following mixture by means of a brush—easter oil, 20 parts; alcohol, 80 parts; soft soap, 40 parts; water, 40 parts. The mixture is left on till the required shade is obtained, then dried with hot sawdust, and coated with a very dilute varnish. The depth of tone can be regulated by the length of time the metal is exposed to the solution.

A process has been invented by M. Greune for decorating aluminum by means of earbon. M. Greune works on the principle that earbon unites with aluminum at a high temperature and forms a durable coating. An alcoholic solution of earbonaceous matter, such as oil, is painted over the metal and then charred, and the carbon thus obtained is further united to the aluminum by heating to a dark red. To vary the shade of the coating certain metallic salts may also be added to the solution.

Late statistics place the number of incandescent lamps in the United States at 4,000,000, about 2,500,000 being in central station plants and 1,500,000 in lsolated plants.

A new coal and coke company have recently been organized at Charleston, West Va., with a capital of \$1,000,000, to control the output of coal and coke in the Kanawha and New River coal fields.

New York Importers and exporters engaged in the Central and South American trade are discussing the deslrability of forming a trading combination or trust.

#### The Will Foundry Sifting-Machine.

A sand sifting machine has been dealgned by Edwin C. Will, foreman of the foundry of Russell & Co. of Massillon, Ohio, where it has been in con-tinuous operation for the last 12 months. It is used to aift sand, mix and aift facings. To operate the machine, the handle on the cylinder shaft, shown in Fig. 1, is turned, when the elevators take the sand from the floor or heap and dump it on top of the sieve, which is a cylinder made of any desired mesh of wire. The method of operating the elevator shaft by a chain from a sprocket wheel on the cylinder shaft

been sifted the machine can be run backward over the heap to an out-of-One man can mix and the-way place. sift an average of 25 shovelfuls per minute. It is stated that before the introduction of this machine it required the services of two men and cost \$30 for the old style sieves per year, in order to sift the same quantity.

#### Aluminum Cooking Utensils.

Prof. Joseph W. Richards, in the annual report of the "Mineral Industry of the United States," for 1893, refers to the employment of aluminum in the manufacture of cooking utensils in the

applied to ordinary household purposes. Lightness, durability, cleanliness, remarkable heat-retaining capabilities and imperviousness to rust or corrosion through chemical action, are some of the qualities claimed for kitchen utensils made of pure aluminum, and, so far as can be gathered, their posses sion of these attributes is not disputed.

#### GROWTH OF MANUFACTURE.

Small wonder is it, therefore, to learn that the demand for aluminum utensils is growing by leaps and bounds and threatens shortly to outstrip the and threatens shortly to outstrip the existing output of the metal. Some half a dozen or more substantial concerns in various parts of the United States are now actively engaged in

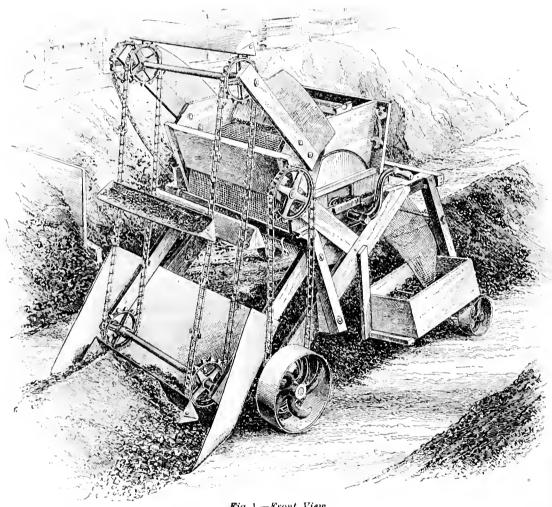


Fig. 1 - Front View.

#### THE WILL FOUNDRY SIFTING-MACHINE.

is shown in Fig. 2. As the cylinder is revolved the sand is sifted twice by going through first the top and then the bottom of the cylinder. A brush extends the full length of the sieve and serves the double purpose of crushing all lumps and cleaning the sieve every time the cylinder moves. Nails, scrap, &c., pass under the brush and are caught by a second sieve, Flg. 2, which stands at an angle, and has a motion imparted to it by an eccentric and spring. All refuse thus caught travels down into the box shown.

The forward and backward motion of the machine is controlled by the chain gear shown in Fig. 1. The operator turns the sieve with his right hand and moves the machine with his left hand by means of the chain connecting with the forward axle. The fender in front aweeps the floor clean and is hung at such an angle that when the sand has following terms: "America has certainly taken the lead in this utilization of aluminum, which, I believe, will become the most extensive application of the pure metal that will ever develop." Judging by the extraordinary strides it has made in popularity during the past year, aluminum, in the shape of culinary and household utensils generally, has already gone far to justify this positive opinion.

#### SPECIAL RECOMMENDATIONS.

Up to within a comparatively short time ago, aluminum utensils were held in the popular regard more as a kind of fad or curiosity than as articles of real utility and domestic value. In the earlier days of the aluminum craze the metal became so identified with fancy ornamental articles and jewelry, that it has been a task of no small difficulty to instil into the public mind the fact that it is a metal which affords peculiar facilities and advantages when

this branch of manufacture, and they are constantly extending their lines. They include such well-known names They include such well-known names as the Illinois Pure Aluminum Company of Lemont, Ill.; Sidney Shepard & Co. of Buffalo, N. Y.; C. Sidney Shepard & Co. and the Wohler Aluminum Company of Chicago, Silver & Co. of Brooklyn, and the Griswold Mfg. Company of Erie, Pa. The manufacturing requirements of these firms absorb a large proportion of the output absorb a large proportion of the output of the Pittsburgh Reduction Company, who at the present time furnish, from their works at New Kensington, Pa., nearly the entire volume of commercial aluminum on this market.

The aggregate output of aluminum ware is growing to be very large and increases week by week. Almost every house furnishing store of any size and all the large department stores now keep this ware in stock, and are generous customers of the manufacturers. The exhibits of aluminum articles at the Chicago World's Fair no doubt served to stimulate the public interest in the metal. Persons who there bought single pieces of aluminum kitchen ware for experimental purposes or from curiosity are now, after practical experience of their utility, in many cases substituting aluminum utensils for those of other kinds as the latter wear out; and this process is growing and spreading, as the merits of the new ware become better known. Already a very full line of kitchen and household utensils is made in the metal, including Kettles, Sancepans, Frying Pans, Tea and Coffee

pared with that of other ware. But, it is claimed, that the little larger initial outlay is more than effect by the practical indestructibility of the aluminum culinary articles, as compared with those of tin, copper or enameled iron. Alfred E. Hunt of the Pittsburgh Reduction Company states that he has had aluminum cooking utensils in use in his own home for the past five years, and articles which have been in constant service for the entire period seem to be as durable and as little worn as when first put into use. Similar testimony is given by others who have had intimate experience of such ware for several years.

object of securing this desideration that the Pittsburgh Reduction Company are now building large works at Niagara Falls. At the present time it is calculated that the cost of producing I pound of aluminam corresponds approximately to the cost of I herse power for ten hours. Thus as the necessary power becomes changer, the price of the metal will cheapen proportionately. Until that time aluminum utensits will continue to be rather more expensive than others

ERRONEOUS IDEAS AS TO PROPERTIES.

Many misapprehensions exist, also, in regard to the properties of aluminum utensils. Some exaggerated ideas are

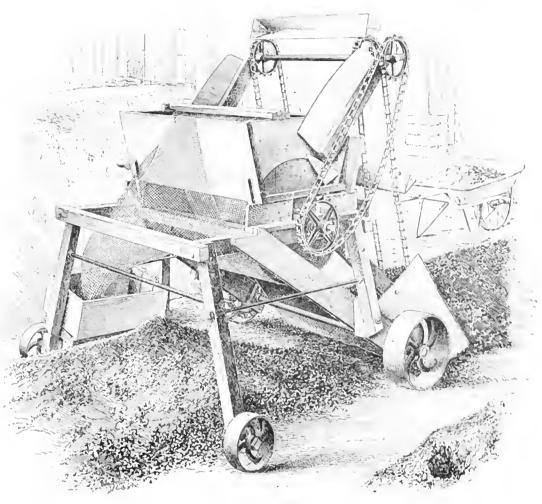


Fig. 2.—Rear View.

#### THE WILL FOUNDRY SIFTING-MACHINE.

Pots and numberless other domestic appliances. For field and camp cooking outfits especially, this metal has proved most valuable, as reducing the weight to be carried, while hospitals and institutions generally are said to be gradually adopting the use of aluminum articles for the preparation of food, on account of its sanitary qualities. The Government have lately placed an order for a 60-gallon aluminum kettle for each of the cruisers "San Francisco" and "Montgomery."

#### CONSIDERATION OF EXPENSE.

The question of expense has been until recently the principal bar to the more rapid popularization of aluminum ware for househeld use; and, although the price of the metal has been of late very materially reduced, so that pure ingot aluminum is now quoted under 60 cents a pound, the expense is still an obstacle when com-

PROSPECTIVE PRICE OF ALUMINUM.

While speaking of the price, it may be well to correct an erroneous impression that is abroad. It is assumed that, as aluminum has come down in value from \$2 to 60 cents a pound in three years, the price is likely to continue falling, so that within a short time it will approximate to that of copper or tin. This, we are assured, is not within the range of probability, so far as can be at present judged. The process of extracting the metal from the clay in which it is found is a costly one. Until this cost can be very materially cut down the price of the metal will not sink appreciably lower than its present level. Undoubtedly the cost will be reduced in time, but the drop is likely to come very gradually and will be in close touch with any prospective lessening in the cost of the power which produces the electricity needed for the reduction of the metal. It is with the

entertained as to their absolute exemption from tarnishing, for instance. On the occasion of a recent visit to the factory of Silver & Co., in Brooklyn, the writer noticed a large aluminum saucepan of the firm's make bearing signs of hard usage, and which was badly blackened on the inside, and on inquiry was informed that this utensil had been returned from a large department store, one of whose customers had bought it on the assurance of the vender that it would never discolor. It had discolored, and the purchaser had indignantly returned it as not being what it was claimed to be. W. H. Silver, vice-president and general manager of the company, explained that this was not an uncommon occurrence, and that it arose from the ignorance of the persons who sold and handled the goods.

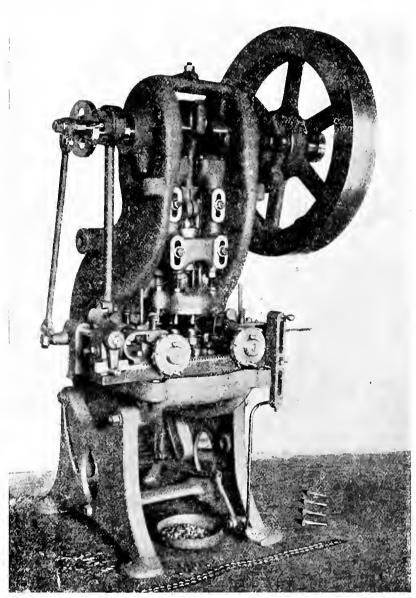
"We do not claim for aluminum utensils," said Mr. Silver, "that they are not subject to discoloration. They do tarnish under certain conditions. For instance, when unfiltered water is boiled for any length of time in the vessel, the sediment of the water will cling to it. Water containing a large proportion of lime, or well water impregnated with iron, will also discolor the ntensil. But this discoloration is not injurious; it does not attack the metal at all, and it can be readily removed with soap and water. A simpler and equally effective way, however, is to boil the utensil in a quart of water mixed with a dessert spoonful of common washing soda. This will clean off all discoloration at once, and leave

Pittsburgh Reduction Company are very emphatic. They give an assurance that the pure metal furnished by them contains no impurities beyond a very minute proportion of silicon and iron. The metal that is used in the manufacture of cooking utensils runs at least 98½ per cent, pure aluminum, much of it nearly 99½ per cent, with from 0.10 per cent, to 0.25 per cent, of metallic iron, and 1 per cent, or at the most t½ per cent, of silicon. There is no lead, arsenic, or other injurious metal present in any of the Pittsburgh metal, of which practically all the aluminum cooking utensils

dition of 2 per cent. to 5 per cent. of copper and nickel in accordance with the amount of stiffness and hardness required

required.

The metal which is rolled into sheets, on the other hand, and afterward stamped and spun, is so hardened in the process as to need only from 1 per cent to at most 3 per cent. of alloy of hardening metals. The sheets supplied to manufacturers come of three qualities, denominated soft, hard and halfhard, according to the proportion of alloy contained in them. The pliability of aluminum makes it peculiarly easy of manipulation in the drawing presses



THE FERRACUTE DOUBLE ACTION DRAWING PRESS.

the metal untarnished and unaffected. In these cases absolutely no chemical action takes place producing anything injurious,

"The metal does not corrode or rust, nor is it at all affected by fruit or similar acids, and of this fact the concerns who handle our goods and those of other makers of pure aluminum articles may absolutely assure their customers. But they should not give them false impressions as to their immunity from tarnishing. Aluminum cooking utensils are, however, remarkably easy to keep clean. They weigh only about one-third as much as the ordinary culinary utensils, will not burn or scorch their contents, and do not break, crack or chip, being pure metal throughout."

PURITY AND ALLOYS.

The wholesomeness of aluminum is questioned by some. On this point the

now made are formed. One of the great advantages claimed for these vessels is this fact of absolute purity, as welt as its homogeneity of substance, there being no plating to wear off. What little wear there is is practically pure aluminum, and such infinitesimal proportion of nickel, copper, silicon or iron as is entirely inert and of no poisonous power on the human system.

SHEET AND CAST WARE,

The form of metal from which aluminum utensils are made is either sheets, which are afterward stamped and spun, or ingots, which are cast into Frying Pans, Tea Kettles and similar articles. Pure aluminum has been found to be too soft for casting purposes, and to dent too easily to give the best results. Consequently the metal is hardened in castings with an ad-

and on the spinning lathe, where it does not require the constant annealing necessary when working in brass or copper.

## The Ferracute Double Action Drawing Press.

The Ferracute Machine Company of Bridgeton, N. J., recently built for the United States Arsensl at Frankford, Pa., a double action drawing press fitted with double feed rolls, acrap clipper, gang dies for cutting and drawing cartridge cups. &c.

cartridge cups, &c.

Considering it first without the attachments the press proper is one of a series of five sizes belonging to what the makers call their "class D" drawing presses. Being of the fourth size

it is known as "press D1." As shown it is driven by a tly wheel direct, but when the same press is arranged for back gearing it is then known as "press DG4," G being the gearing symbol for all presses of this make. Its dimensions are as follows: Round hole through bed, 10 inches: throat, from ram center back to frame, 9 inches; hight, bed to ram, with ram up, 12 inches; stroke of ram, 2½ inches; adjust-ment of ditto, 3 inches; hight, bed to plunger, when up, 17 linches; stroke of plunger, 5 linches; adjustment of plunger, 3 inches; fly wheel, 42 x 6 inches, and weight of same 1150 pounds; speed of fly wheel, 80 revolutions per minute; thickness of bolster, 3 inches, and round hole in same 71 inches; pressure safely exerted by ram, 52 tons; maximum dismeter of work, 7 inches, and depth 2 inches; maximum blank diameter, 11 inches. This machine is built with a frame so mounted upon its lega as to be quickly inclinable to any desired angle by a convenient geared ele-

vating screw and proper clamping nuts for securing the same. The spring ram lifter is arranged with an equalizing lever so that the lifting is practically equal all the way up, together with a positive lifting device connected with the pitman so that the cams cannot leave the rollers in case the spring lifter should fail. The ram has a very large hole for deep punches to pass into, and yet has solid metal whereto upper dies may be fastened by the hooked clamps provided, together with a plunger having a large and long hole for shanks of punches, with a locking arrangement which moves them positively up and down, but allows sufficient play so they may enter their dies accurately and centrally, while at the same time leaving room to put in bushings to fit various odd punches which may be required. The bolster is provided with a deep and heavy truss ex-tending down into the bed of the press so that it may remain perfectly flat and yet can be tipped slightly out of level at its different corners by four sliding wedges driven by screws and nuts, while at the same time its thin and elastic edges are firmly clamped to the bid, thus enabling dies to be accurately aligned to each other to prevent wrinkling of work. A pair of stay rods are furnished which can be quickly inserted in the frame, thus making the preas nearly as stiff as a straight column press upon certain occasions where great rigidity is required, and where it is not necessary to pass long sheets through sidewise, as is usually done in "throated" presses. The shaft is of forged steel with large and long journals. In an enlargement of its solid metal is mounted an automatic stop clutch of extreme simplicity, and which has its different members so interlocked with each other in the process of assembling as to require no nuts or acrews whatever-these being objectionable in a device of this kind where the tendency is constantly to knock them loose. This clutch is provided with a loose. This clutch is provided with a safety lock which can be so manipulated as to prevent the press from starting while dies are being set, &c. A new feature consists in a so-called "brake plate," carrying the tripping device, which is adjustable around the shait's axis, thus allowing the clutch to be tripped either earlier or later than the normal, to accommodate itself to varying degrees of momentum dependent upon the conditions of speed, lubrication, extra weights upon the shaft (as cams, gears, pulleys, &c.), and other circumstances which usually have to be controlled entirely by a brake. thus in many cases losing a large amount of power. To the plate in question is attached an adju table brake, which, however, is usually set with but slight pressure.

In general, this machine is characterized by carefully proportioned parts, great weight and inertia in those submitted to heavy stresses, harmonious curves, heavily rounded corners, ab-sence of external ribs, case hardened bolts and nuts of large diameter, &c.

Three smaller and one larger sizes of presses of this same design are also built. The smallest weighs about 1200 pounds, and the largest about 7400 pounds, reckoned without feed attach-

ments, &c.

Any of these presses may be fitted with attachments of the general nature shown in the cut. The one in question. however, possesses certain special features of interest adapting it to the cartridge work referred to. One of these is a set of aix differential pawls upon the disk shown at the front end of each lower feed roll These are arranged to act upon a ratchet wheel of 61 teeth in such a way that each pawl governs in auceession the stopping point of the feed, thus enabling variations of feed as small as  $_{155}$  inch by reason of each ratchet tooth being virtually divided into six parts, so to speak—a fineness which could not be incorporated in the ratchet itself, as such teeth would be too small Were the for atrength and durability. ratchet to have 60 teeth it is evident that all the pawls would engage simultaneously. By adding one tooth, however, to 60, the differential effect above mentioned is obtained.

In this double roll feed attachment is shown the rack and pinion connection generally used in presses of this make, this being, it is claimed, an improve-ment upon the old system of a pitman attached to levers, Inasmuch asit allows any desired angular motion of the rolls, even more than one whole turn if necessary, thus giving a considerable length of feed. By the old system not more than about one-third of a revolution can be obtained, which, where long feeds are desired, necessitates an inconveniently large diameter of roll. rack system also permits the feed rolls, with their housings, to be adjusted bodily right and left, either nearer to or further from each other, to suit that size of the dies which must be placed between them.

The length of feed required is obtained by adjusting the crank pin in its disk as usual, this being done at the extreme left end of the main shaft. Just to the right of the crank disk is shown another pltman driven by an eccentric which works a small shears for clipping the scrap into short pieces as it comes from the rolls, thus making it very con-

venient to handle.

At the right of the press bed is shown an attachment for automatically releasing the treadle of the press from its locked down position when the strip of metal comes to an end. This is accomplished by a light, bent lever (shown extending above the right hand rolls) which rests upon the metal, but falls by its own weight when the same is not present. It thus releases a delicate catch which allows the weighted bar to drop, with the result of unlocking the treadle. A large number of an older design of press by the same makers have been running for some years in one of our cartridge factories, some of which are equipped with as many as 12 dies in a gang. They are run about 60 revolutions per minute, thus cutting

and drawing from the sheet in the neighborhood of 400,000 complete eartridge cups per day of ten hours. One operator can attend to several of them

#### A Big Magnet.

Probably the largest electro-magnet in the world has been constructed by Lieut Col. R. W. King, the commandant of the Government station at Willett's Point. It is made of an old Rodman gun, many mites of covered cable, and is excited by the current from two dynamos. Around the barrel of the gun, which is of east iron, has been wound 14 miles of insulated cable. The armature consists of six platform plates bolted together. When charged, the magnet will support five 325 pound eannon balls, suspended like a chain from the muzzle. From the New York Sun we take the following:

When the first one was hoisted within control of the magnet it aprang to the gun with a thump. As each cannon ball was moved toward the one above it, it sprang up and clung so fast that it could not be pulled away. For convenience in lifting these heavy weights within the influence of the magnet an iron pulley with { inch chain was used at first. It was found, however, that when the gun was magnetic the chain The chain and pulley were of no use. became as rigld as if it had been a bar of solid steel and was riveted to the

gun.

Another Interesting experiment that has been made with this magnet seems even more wonderful to the layman than the grip on the armature. dier standing 3 or 4 feet from the gun, with his back toward it, places an iron apike against his breast, and it stands out as straight as if the man himself were a magnet. The man then covers his chest with iron spikes until he looks like a porcupine. He feels no effect from it, and he simply has to resist the pushing of the iron spikes, which are very anxious to reach the gun. When the current is on, the whole gun carriage, which is also of iron, is charged.

Col. King has plotted out the lines of magnetic force from the muzzle of this gun. A table was placed in front of the gun and on this were placed a nunber of small pieces of wire. When the gun was magnetized he found the general direction of the curves of the magnetic force from the way in which the

wires poin'ed.

With its earriage this Rodman gun welghs about 80,000 pounds, and when it was all magnetic there was a good deal of speculation as to the radius of its appreciable influence. Col. King settled speculation on this subject re-He placed light compasses at cently. various distances from the gun before it was magnetic. They were set with the indicator pointing to zero. The electrical current was then turned on, and the big gun became a magnet. Its power was indicated by the compasses. Col. King found that at a distance of 71 feet the magnetism of the gun equalled that of the earth, and that the indicator was deflected 45 de-

At the distance of 200 feet the needle was deflected only three degrees. This should set at rest the fears of foreigners that compasses on vessels six miles away could be disarranged.

Recent rich gold strikes at Leadville, Col., are creating great excitement in that mining town.

## ROOFING AND CORNICE.

#### Conductor Heads .- 1.

BY CORNICE WORKER.

The variety of designs which may be produced of leader or conductor pipe heads is so large as to be practically without limit. Some of these designs

and pattern for the rear of the head. The three plans and elevations are not necessary in obtaining the patterns, but are given in order to make clear every step taken. All that would be necesary in obtaining the patterns would be the plan and elevation shown in Fig.

Fig. 1, represent the plan of the head, corresponding to K L M N of the elevation, and E the plan of the leader, corresponding to O of the elevation. As the profile of the head, shown by N M of the elevation, contains no curve and all lines are straight, only

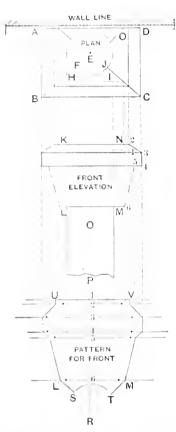


Fig. 1.—Plan, Elevation and Pattern for Leader Head with Round Pipe.

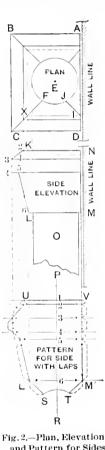
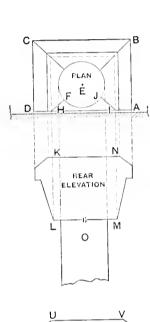
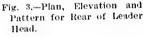


Fig. 2.—Plan, Elevation and Pattern for Sides of Leader Head with Round Pipe.



S T



PATTERN FOR REAR



Fig. 4.—Appearance of a Round Pipe After Passing through the Turning Machine.



Fig. 6.—Appearance of Properly Flanged Tube or Pipe.



Fig. 7.—Improperly Flanged Tube.

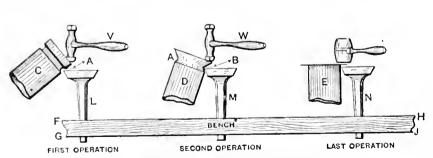


Fig. 5.-Method of Flanging the Round Pipe or Tube.



Fig. 9.—View of Leader Head Indicated in Fig. 1.

CONDUCTOR HEADS.-ILLUSTRATIONS SHOWING DEVELOPMENT OF PATIERNS.

are presented in the illustrations given herewith, as are also the methods of laying out the patterns. In Figs. 1, 2 and 3 are represented the methods of obtaining the patterns for a plain leader head, the first illustration representing the plan, elevation and pattern for the front, the second showing the plan, elevation and patterns for the sides, and the third figure the plan, elevation

1, and knowing how far the head projects over the wall line, as indicated in plan from D to C, or A to B, the front pattern would be used to mark the cut for the sides, and for the flat head in the back, indicated in the plan from A to D, the front elevation shown by K L M N would simply be pricked through onto the metal. Now, to make each step clear, let A B C D,

the corners of bends are numbered, as indicated by 1, 2, 3, 4, &c.

For the pattern of the front, corre-

For the pattern of the front, corresponding to the front elevation, preced as follows: At right angles to L M of the elevation draw the stretchout line P R, upon which place the stretchout of the profile N M of the elevation, as shown by 1, 2, 3, 4, &c, on the stretchout line P R. At right angles to P R,

and through the small figures, draw lines indefinitely, as shown, which intersect with lines of corresponding numbers drawn from the amall figures in the elevation at right angles to I. M. A line traced through these intersections, as shown by U V L' M', will be the pattern for the front.

To obtain the pattern for the lower bend 6 M, as shown in elevation, Fig. 1, proceed as follows: Where the bottom of the head intersects the leader

represent the plan of the pipe or leader, corresponding to O of the side clevation. It will be noticed the plan and elevation of the side corresponds to that of the front, with the exception that it is viewed from the side in Fig. At right angles to L M of the side elevation, Fig. 2, draw the stretchout line P R, upon which place the stretchout of the profile K L of the side elevation (which also corresponds to M N of the front elevation Fig. 1), as shown

right angles to C B draw the dotted line X I, intersecting the wa'l line, as shown. Now take a duplicate of F X 1 J in plan, and place it in the pattern as shown by L M T S, which completes the pattern for the sides. have been allowed on pattern as shown by the dotted lines, and the small dots indicate the bends.

In Fig. 3 is shown the plan, elevation and pattern for rear of head, which corresponds to the plan and elevation shown

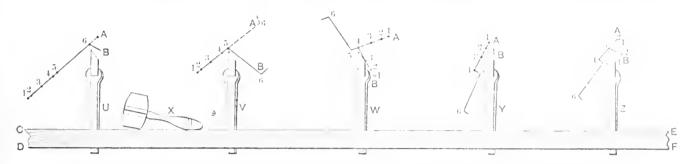


Fig. 8.—The Five Operations Necessary in Bonding on the Hatchet Stake, with the Millet, the Leader Read Indicated in Fig. 1.

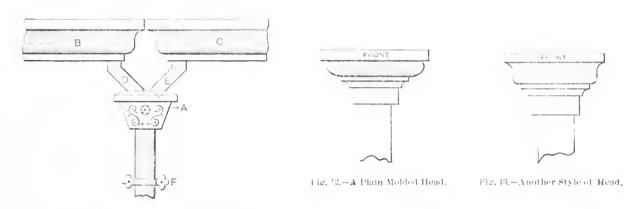


Fig. 10.-Showing Manner of Using the Leader Head.

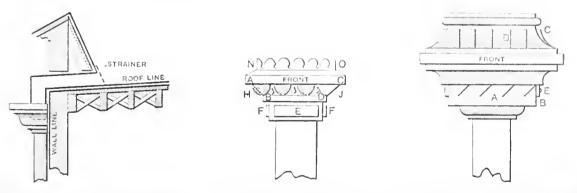


Fig. 11.—Section Showing a Valley Connected to an Elbow Passing through the Wall of a Building into a Leader Head.

Fig. 14 -A More Ornamental Leader Head.

Fig. 15,-A Still More Elaborate Design of Head.

#### CONDUCTOR HEADS, -DESIGNS AND METHODS OF EXECUTION.

head, as at M 6, draw upward from the by the small figures on the atretchout plan by I O and cutting the miter line J C at I. From the intersection I and at right angles to D C draw a dotted line cutting the miter line F B at H. Now take a duplicate of H I J F and transfer it to the pattern, as shown by L' M' T S, which completes the pattern. The small dots shown on the pattern indicate the bends.

For the pattern of the aides of the head, proceed as follows: Let A B C or bend 6, in the side elevation, draw a D of Fig. 2 represent the plan of the head, corresponding to the side elevation of the head, corresponding to the side elevation with the miter line C F in plan at tion shown by K L M N, and let E X. From the intersection X and at

bend 6 a dotted line, represented in the line P R. At right angles to P R and through the small figures draw lines indefinitely, as shown, which intersect with lines of corresponding numbers drawn from the small figures in the profile of the side elevation at right angles to L M. A line traced through these Intersections, shown by L' M' V U, will be the required pattern.

For the pattern of the bottom bend, 6 L, proceed as follows: From the point

in Fig. 1, except that the plan and elevation in Flg. 3 are viewed from the rear. A BC D of Fig. 3 represent the plan of the head, corresponding to K L M N of the elevation, and E in the plan shows the pipe or leader, corresponding to O of the elevation. For the pattern for the rear of head, simply prick through the rear elevation direct upon the metal, by means of a scribe awl or prick punch and hammer, and the result will appear as shown in pattern by U V M' L'. Now, from the corner L in the rear elevation draw a dotted line upward at right angles to L M, cutting the miter line H F and the rear line D A in plan

at II. Draw a line from II parallel to D A cutting the miter line I J at I. Take a duplicate of II 1 J F in plan, and transfer it as shown in pattern by L' M' TS, which completes the pattern. The dots on the line L' M' in pattern indicate the bends. This completes the entire set of patterns required for the leader head shown in front, side and rear elevation in Figs. 1, 2 and 3; and these patterns could be used whether the leader was square, round or cetagon. The only change required on the pattern, providing the leaders were square or octagon, would be that the curve shown in the three patterns by S. T. would be a straight line for that given eize of square leader, or a portion of an octagon in shape for the given size of an octagon leader.

#### Sizes of Heads.

It is usual to make different sizes of heads to correspond to the different diameters of leaders used. The following will give a good proportion of the sizes of the leader heads used in connection with leaders of different diameters:

Diameter of																opening
leaders, in								ŧ.	)	ľ	1	ì	e	ad, i	$\mathbf{n}$	inches.
inches.													٠	ide.	F	ront.
3													,	416	X	512
4													,	ຸ່ບັ	X	7
5														616	X	8
6			ì											. 8 ~	X	9

#### Preparing and Flanging the Tube.

The patterns having been cut for the head, the next step is to prepare the tube, which is to be soldered into the head. Tube is usually made about 6 inches in length, and the diameter a little smaller than the size of leader used, so that the tube will easily slip into it. After rolling the tube, and soldering or riveting it, a flinge not less than & inch should be stretched upon it, which in turn is soldered to the leader head. In stretching any flange it is usual to run the pipe through the turning machine, thus giving the article a small groove, which guides the workman in stretching, and does away with the sharp corner, which is not necessary in work of this kind. In Fig. 4 is shown the appearance of a round tube after passing through the turning machine. It will be noticed that the groove A is dented inward, and in stretching is laid against the corner of the square stake shown at C of Fig. 5, thereby enabling the workman to have an even flange, as before explained. Fig. 5 shows the proper method of flanging a round tube. F G H J represent a wooden bench or bench plate; L, M and N, the square stakes; C, D and E, the tubes; V and W, the stretching hammers; and X, the wooden mallet. After the tube C of Fig. 5 is run through the turning machine, Fig 4, the groove in the tube is placed upon the square stake, as shown in Fig. 5, in the first operation, and with the use of the stretching hammer V, and gradually turning and striking the tube alternately, the flange is drawn out or stretched as much as is indicated by the arrow line  $\Lambda$ ; bearing in mind that the force of the blow should be the same at every stroke, or else the profile of the opening of the tube will not be a true circle. Now take the tube C and place it as shown at D in the second operation, striking and gradually turning the tube alternately, using the same stretching nam-mer as shown at W, until the flange is drawn out or stretched as indicated by the arrow line B. Finally, take the tube D and place it as shown at E in the last operation, and with the use of the wooden mallet X level the flange

until it has the appearance shown. Fig. 6 gives a perspective view of the same tube flanged out by the foregoing method, which is the proper way of doing work of this kind, the stretched flange being shown at A. In Fig. 7 is undicated the improper method of flanging the tube by means of notching with the shears and bending, the improper flange being shown at A.

#### Tools Required.

The turning machine, square stake, bench plate and stretching hammer, above referred to, can be purchased from wholesa'e dealers in tinners' supplies, the turning machines costing from \$8 to \$11, according to size, and the square stakes from \$2 to \$4. The bench plate is not necessary if the holes are properly cut into a solid bench, although the plate comes very handy, because it contains the different size openings required for different tools. The bench plate can be obtained in two sizes, costing from \$2 50 to \$4. Stretching hammers are usually sold by the pound or according to the size required, with or without handles.

#### Forming or Bending the Leader Head.

In Fig. 8 is shown the method of forming upon the hatchet stake with the use of a mallet the leader head represented in Fig. 1. Let C D F E represent the bench, U, V, W, Y, Z the hatchet stakes and X the wooden mallet. Let A J in the first operation represent one of the sides of the leader head shown in Fig. 1, the small figures on the line A J being similar to those on the two patterns shown in Figs. 1 and 2. A small strip of metal should be first formed so as to see which way the molding forms best. In this case we will commence at the lower bend 6. Now notice the first operation in Fig. 8. A J represents one of the sides of the leader head and is laid against the hatchet stake U in the position as shown, on the bend 6, and A 6 is bent over until it has the angle shown in the front elevation in Fig. 1 by 4 6 M, which is indicated in the first operation in Fig. 8 by 6 B. Now reverse the side and place the bend 5 upon the hatchet stake in the second operation in the position shown. Press down upon A and make the angle 4 5 B correspond to the angle 4 5 6 in the front elevation, Fig. 1, always bearing in mind to use the mallet X to obtain a sharp corner. Now reverse the side again, and place the bend 4 upon the hatchet stake in the third operation, placing it in the position shown and holding the bend 4 firmly against the hatchet stake. Use the mallet X and make a small crease along the bend 4 by firmly striking the mallet along the bend. Press down upon A, making the angle 5 4 B correspond to the angle 543 in the front elevation, Fig. 1. Now reverse the side again, placing the bend 2 upon the hatchet stake as shown in the fourth operation and using the mallet as before explained. Make the angle 3 2 1' correspond to the angle 3 2 1 in the front elevation, Fig. 1. Now place the side of the head upon the bend 3 (rot reversing it) on the hatchet stake in the fifth operation and make the angle 4 3 2' correspond to the angle 4 3 2 in the front elevation, Fig. 1, which completes the profile as shown by 1, 2', 3, 4, 5 and 6 in the fifth operation. The pattern for the rear has only one square bend upon the line 6, as shown in Fig. 3. After the entire head is formed it is soldered together water tight, and finally the tube shown in Fig. 6 Is also

soldered in place. When finished it has the appearance shown in Fig. 9, in which A shows the laps indicated on the pattern for sides in Fig. 2.

#### General Use of the Lender Head.

In Fig. 10 is represented a front elevation showing for what purpose the leader head is employed. B and C represent two molded gutters, connected to the two clbows D and E, which in turn pass into the leader head as shown. If desired, small scrolls could be cut from sheet metal, raised from 1 to 1 inch, and tacked with solder upon the face of the head, as indicated at A in Fig. 10. F represents a sheet metal band placed over the leader hook. Fig. 11 is a sectional view showing a valley connected to an elbow, passing through the wall of a building into a leader head, which is another illustration of the purpose for which the head can be employed. Designs.

There is no limit to the number of the designs which can be produced if the tinner will exercise a little patience. In Figs 12 and 13 are shown plain molded leader heads, the patterns of which are obtained in the same manner as shown in Figs. 1, 2 and 3. In Fig. 14 is shown a more ornamental leader head, having raised panels on front and sides indicated by F E F, egg and dart molding, as shown by H J, and a small scallop cut out at the top, as shown by The scallop would be cut out and simply tacked upon the top of the head. The egg and dart molding could be purchased from dealers in pressed zinc ornaments, costing from 6 to 20 cents per foot, according to the size required. If egg and dart molding was required, the head would be bent as shown from C to D and B to A, upon snown from C to D and B to A, upon which the egg molding J and H would be tacked with solder. The panel E would be pricked directly off the elevation, and the depth of the strlp shown at F and F added to it. In Fig. 15 is shown another form of leader head more elaborate in construction. Stripping it of all enrichment D and A. we have only moldings placed in proper proportions to give a pleasing effect to the eye, thereby showing that if the tinner will give a little time to drawing different moldings, so that each member is in proportion to the other, it will be worth the time invested in case other cornice work comes to hand. The enrichments shown at A and D in the front view in Fig. 15 are simply pricked from the face of the drawing by placing a piece of sheet metal under the drawing and pricking through the triangular dentil A, and adding to it the hight of the strlp B. The small ball shown at E would be obtained from pressed zinc ornament manufacturer, and tacked with solder on the dentil as shown. The dentils would be tacked against the sides and front of the head in the position as shown. For the projections on the top of the head, prick off the section C and solder on the face edge a strip as wide as indi-cated at D. The pattern would be obtained in the same manner as shown in Figs. 1, 2 and 3. Cases may arise where the leader head is required to be octagon or round, but this will be described in another issue.

THE KINNEAR & GAGER COMPANY, Columbus, Ohio, distribute a new catalogue of metal ceilings, borders, cornices, wainscotings, &c. Half-tone engravings show a variety of designs of this sort, and brief particulars are given re-

specting dimensions and finish. Attention is also called to Kinnear's fire proof shutters, paneled on both sides.

#### Decorative Art Metal Plates.

The illustrated catalogue and pricelist sent out by Gara, McGinley & Co, proprietors of the Austin Metal Cornice roprietors of the Austin Metal Connec & Roofing Works, Philadelphia, Pa., for the year 1895, is a notably handsome publication. It is of large size, for the purpose of presenting illustrations of sheet metal work in suitable proportions. The pamphlet measures 14 x 10 inches, contains over 60 pages and is profusely illustrated. In an introductory note they mention that they are not imitators of wall paper designs, but that their metal designs are reproductions of ancient carved or molded work, and add that their product is superior to the original, both in cost and durability. The decorative art steel sheets, which are illustrated in colors, show exceptionally fine effects. Zinc centers of various designs are illustrated, the engravings, it should be noticed, being notably well executed and printed on fine paper, so that all the details of ornamentation and decoration are clearly brought out. Some 15 pages are given up to work of this The next division relates to ceiling cornices and paneling. Enriched coves of various designs are shown; likewise moldings of all sorts. Plates for side wall finish are illustrated in a variety of designs, the pictures taking up many pages of the catalogue. Samples are given of the application of the work on stairways and interiors. Sectional views are presented showing the method of applying the ceiling plate, coves and cornices. Deep molding plates are illustrated in a number of engravings, both large and small. Altogether the book is a most attractive ore, and will be much appreciated by the great and increasing number of those who use sheet metal for interior work. Another catalogue issued by Gara, McGinley & Co. relates to sheet metal fronts, cornices, bay windows, finials, weather vanes, zinc ornaments,

#### FLASHINGS.

THE YOUNGSTOWN IRON & STEEL ROOFING COMPANY, Youngstown, Ohio, manufacturers of all kinds of iron and steel roofing and siding, recently received an order calling for about 90 tons of roofing, while from the East an additional order has been secured for 70 tons, and from one of the New England States the concern have received an order for 1000 squares of curved corrugated iron. This concern have been in business only a short time, and their plant is being operated to its utmost capacity on orders already received.

L. D. Berger, Philadelphia, finding his premises on Arch street inadequate for the requirements of his increasing trade, has removed to 59 North Second street, in that city, where he will carry a much larger stock of tinners' and roofers' supplies than heretofore.

DR. T. J. O'SULLIVAN, Derby, Conn., is to erect a business block that will have metal ceilings. F. B. Munson has the contract for the tin roofing.

GEO. McLevy & Sons, Bridgeport, Conn., have contracted for slating a house at Old Mill Green, one for Marsh Bros., the new barn for D. F. Hollister and Mr. Hollister's residence on Myrtle avenue, and they are also putting the

slate on the steeple of St. Augustine's Church.

II. RAPHAEL, New Haven, Copn., will erect a four-story building that will have metal cornices.

Rnodes, Dickelman & Co., Forest, Ohio, have recently added to their manufacturing establishment a fully equipped eaves trough and conductor plant, and are now erecting an exten sive warehouse for their own use. They also propose to add an improved cornice department, in which they will manufacture finials, crestings and other sheet metal goods. The company's entire plant is now operated by gas power, and is one of the most complete establishments of the kind in the country.

THE NEW YORK IRON ROOFING & CORRUGATING COMPANY, Jersey City, N. J., report that they have lately received aome heavy export orders for their roll steel roofing. One for galvanized corrugated sheets was filled for Corinto, Nicaragua, and another for galvanized corrugated and curved sheets for arches for Mexico. Some large orders have just been filled by the firm for corrugated iron roofing from Bristol and Providence, R. I., and Norfolk, Va. The company have recently added to their new plant new machinery for manufacturing galvanized iron gutters and conductor pipes in long lengths.

The Railroad Coal Operators' Association met in Pittsburgh last week to decide upon a new mining rate to take the place of the old 69-cent rate, which expired recently, according to the decision of the Interstate Board of Arbitra-tion. The new rate was to be either 62 cents, 60 cents or 55 cen's, and the latter rate was finally agreed upon. The resolution providing the new rate declares that 55 cents shall be the rate for thin vein coal going West; for coal going East, the rate shall the same as paid by the Penn and Westmoreland gas coal companies. The resolution pledges the operators to advance the mining rate when it can be maintained in competing mines. It states that the coal trade was never in such a serious condition as now, and that the only relief is through an equitable basis for different branches, to prevent cutting below legitimate profits. The operators will demand a rearrangement of freight rates, which is one of the lead. ing features of demoralization. allow Pittsburgh the benefit of her natural advantages the railroads must establish a rate on the mileage basis, measured by the coal producing districts. Giving the thick vein coal the same rates West, without allowing the thin vein coal to go East on the same terms, works to the disadvantage of the Pittsburgh operators, as the thick vein operators have a lower freight rate East and a lower mining rate.

A test of the strength of a 3 inch concrete floor, reinforced by a sheet of expanded metal embedded in it and hooked over the beams, was made December 15 by the Expanded Metal Fireproof Construction Company of New York, in the New Salvation Army Building on East Fourteenth street, New York. The floor is flat, but reinforced at intervals of about 5 feet by channel iron arches (laid with the flat side underneath) resting upon the lower flanges of the floor beams. The channel is filled with concrete and the

haunches of its arch filled in with concrete to the floor level. On a section of floor midway between the arches and beams, 12 inches square, a load of 3800 pounds of pig iron was piled without causing deflection or fracture, the test being discontinued on account of the falling over of the pile of pig iron. The expanded metal, as illustrated to cur issue of December 7, 1889, consists of a sheet of soft steel, slashed and opened out, forming a sort of net, with thin, deep meshes on edge.

The Best Material for Boiler Tubes. - A Committee of the American Railway Master Mechanics' Association, of which T. A. Lawes, of Indianapolis, is chairman, has sent out the following list of questions relating to boiler tubes: 1. What is the best material for locomotive tubes? 2. Please give your reasons for this preference. 3. In ordering tubes, do you furnish specifications? If so, please send a copy of same. 4. In your opinion, would a tube made of a fair quality of material, combined with a safe end made of a good quality of material, answer for all practical purposes? 5. What is the maximum length of locomotive tubes of different diameters? 6. What should be the thickness of metal for tubes of different diameters? 7. How often may tubes be pieced out with advantage and safety? 8. When and for what causes should tubes be coudemued? 9. How do you test tubes and safe ends? 10. In making specifications for tubes, is the effect on them of the water used taken into consideration? 11. Describe your methods of fastening tubes at front and back end; say whether copper ferrules, and what kind of tools are used for calking and turning over the ends of tubes.

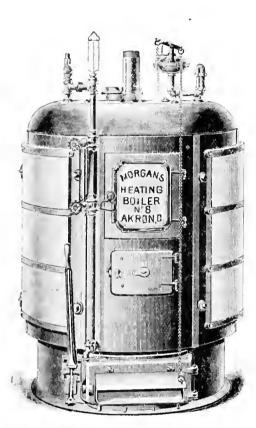
The General Electric Company are now building at their Schenectady works one of the largest alternating current generators ever constructed. The gengenerators ever constructed. The generator is to be installed at St. Louis, Mo., in the station of the Edison Elac tric Illuminating Company, and will supply current for incandescent and arc lighting and for motor service. The generator is of 800-kilowatts capacity, has 80 poles, and is to be driven by a Hamilton Corliss engine at 90 revolutions per minute. On account of the great size of the frame difficulties were to be expected in producing the castings, but thanks to the facilities of the Schenectady works, no trouble was experienced in pouring even the large frame casting shown. This single large frame casting shown. piece, made up in part of wrought iron embedded in the castings, weighs 35 tons and measures 24 feet over all. The armsture is iron clad and is 16 feet in diameter, weighing nearly 100,000 pounds. The armsture will be supported on a 22 inch shaft. The completed generator will supply, when at full load, 667 ampères at 1,200 volts, equivalent to 16,000 16-c. p. lamps. In connection with this it should be stated that the great size of the generator was necessitated by the requirements under which the machine is to be operated, chief of which is the low speed of revo-

The Massillon, Ohio, district miners' organization issued a statement on Saturday that the miners accepted the recent award of the Board of Arbitration under protest, reserving the right to ask for a new settlement when opportunity offers.

## STEAM AND HOT WATER.

The Morgan Surface Feed Steam Boiler.

We show in the accompanying illustrations the Morgan surface feed steam boiler put on the market by the D. F. Morgan Boiler Company, with factory at Akron, Ohio, and western branch at feetly capable of doing. The products of combustion pass into a revertible flue, and, during their passage downward over the baile plates are cooled, by coming in contact with the colder water at the bottom of the boiler, to a tempera-ture between the heat of the main steam pipe and the lesser heat of the main rethem themselves in view of their increasing business. They have accordingly bought ground in the western part of Detroit, on which they are erecting fac-tory buildings which include a foundry about 100 x 200 feet; machine shop 50 x 175 feet, and warehouse 50 x 70 feet, above which will be the offices.



Morgan Surface Feed Steam Boiler .- Fig. 1. - General View of Boiler.

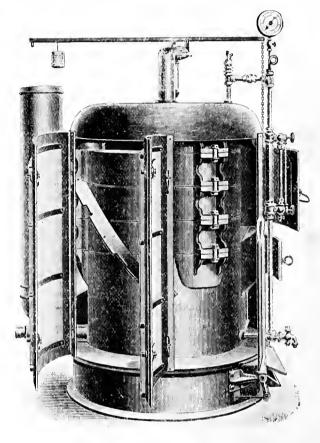


Fig. 2.-Side View with Doors Open.

23-25 West Lake street, Chicago, Iil. A general view of the boiler la illustrated in Fig. 1, showing the fire and clean out on Fig. 1, showing the fire and clean out door for interior aurfaces and the front and alde doors for cleaning exterior aurfaces, ash pit door, &c. Fig. 2 gives a side view with all the doors open, showing the accessibility for cleaning exterior aurfaces, and also showing the ordinary arrangement of baille plates as aultable for flues of low velocity of draft. The baille plates, however, for drafts of high velocity can be arranged horizontally, so as to increase the resistance and delay the travel of the hot gasea. A general view of one of the boller sections in shown in Fig. 3. It is pointed out that the openings between the arms are of greater area than the arms themselves, thus allowing radiant heat from the fire to penetrate to the dome and also give space for the ignition of all the unburned gases. The principal claims made by the manufacturers for this boiler are, that all fire surfaces can be readily cleaned, after the boiler is set complete, by awlnging back the outside casing and opening the doors to the interior, this being a work that an ordinary servant is per-

hood to the chimney flue. This, it is said, effects a very great saving. The easa with which the boiler can be cleaned, that there is no danger of the company

turn pipe, before escaping through the | The buildings are arranged so that they hood to the chimney flue. This, it is | can be extended when necessary, and

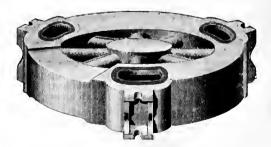


Fig. 3 -General View of Boiter Section.

the manufacturers point out, makes it particularly well adapted for the use of soft or bltuminous as well as anthracite

THE UNITED STATES HEATER COM-PANY, Detroit, Mich., who have heretofore had their heaters manufactured under contract, have decided to make finding themselves cramped for room in the future. Their new premises will be located on the Wabash Railroad near the Fort street electric street railway, and but a few blocks from the Detroit River.
The main shop is under contract to be completed by January 1, and the other portions of the plant will follow later on, but it is not planned to remove the effice from Randolph and Congress streets until May 1. We understand that in addition to their line of ateam and hot water heaters the compauy will bring out the Capitol warm air furnaces.

#### The Magee Water Heater.

We show in the accompanying illustrations two views of the Magee Water Heater that has just been brought out by the Magee Furnace Company of Boston, Mass. The manufacturers have been experimenting with it during the past year, and, having been fully satisfied with its work, are placing it on the market and intend to give it such prominence among the trade as its merits deserve. Fig. 1 is a general view of the heater, showing its exterior appearance, while Fig. 2 is a sectional view illustrating the location of The circulation, it waterways. will be noticed, is vertical, A A representing the waterway in the lower section, C C the upper section, D D the inner waterway and F F the hollow cross section through which the water flows from the lower section to the inner water chamber. It is partieularly noted that a large part of the heating surface is presented to the di-

ber, parallel with the outer one, and which is said to add very much to the heating power. The principle of the dash yellows and the ash pit also is large and roomy. The heater is easily eleaned, doors for the purpose

feature is the inner circu'ating cham- | sufficient to hold fire for 12 hours with-



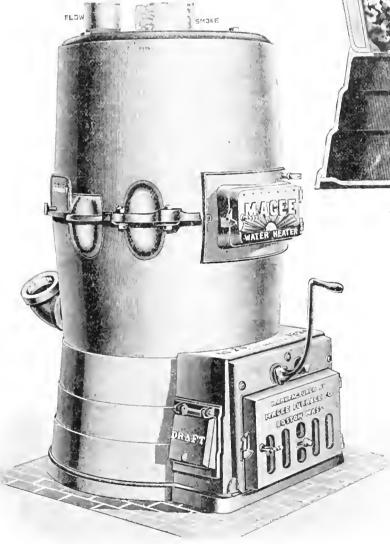
Fig. 2.—Sectional View of Heater.

being located as shown at H H of Fig. 2.

#### Pressure Hot Water Heating.

BY LISTENER.

Those who are not thoroughly acquainted with hot water heating are apt to be favorably impressed with the pressure system of hot water heating, particularly as a general opinion prevails that the house can be heated by this system at a somewhat less expensive outlay for the plant. An experienced fitter made the remark that if a house required 500 square feet of direct radiation with water at 180° it is possible that a saving of 40 per cent. of the radiation would be made by using a pressure system that would heat the water up to 250°, but insisted that a boiler of the same size would be required in either case and that in all probability more coal would be required in the pressure He gave as a reason that with system. He gave as a reason that with a brisk fire a high temperature would be maintained by the fire and that the water returning from the open system would be at a low temperature, and consequently absorb more heat from the fire and leave less to pass to the chimney than if it came back at a much higher temperature, as it would from the presa-It has been observed by ure system. practical men that a much more careful



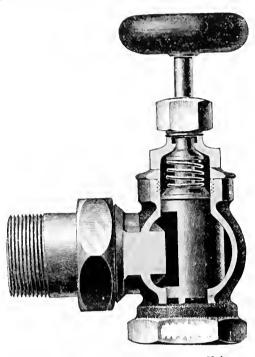
The Magee Water Heater,-Fig. 1.-General View.

rect action of the fire, and it is furthermore pointed out that the surfaces are so arranged that there is practically no horizontal circulation. The distinctive | The fire pot is deep and of a capacity

indirect draft is employed in the heater as well as the Dockash grate, both being features of all Magee goods. job of piping is necessary with a system of water under pressure than with an open tank system. It is further believed that water under pressure is much more erratic in its circulation. The general opinion of those who have had the lougest experience with both methods of water heating is that the pressure system has no advantages to recommend it and may be the cause of considerable disaster.

It is argued by some that if a man desires a high temperature system under pressure, steam is less likely to explode or burst, and is more desirable.

Recently, on a heating plant the steam registered a pressure of 45 pounds when the safety valve was set to blow off at 12 pounds, and on noting the high pressure indicated by the gauge the valve was examined and it was found that corrosion had fixed its seat permanently and that considerable power was required to release it. The owner of a building who was looking for a heating plant, in speaking to one of his friends whom he preferred to have do the work, but whose bid for the job was considerably above another bidder in price, told him that the con-



Exeter Hot Water Union Radiator Valve.

If a system worked under pressure should burst, an apartment is at once filled with steam, from the fact that water at a temperature anywhere above 212° will make steam on being liberated, and if at a temperature of 250° will have a much greater expansive power on being liberated than steam at the same temperature, and fill a greater space. In a dwelling the paper on the walls, the books that may be in the room, or any of the articles of furniture that may be affected by steam are likely to be severely damaged.

As a rule, an expansion tank is placed on a pressure system, which is more properly called an air chamber, and when correctly proportioned such an air chamber should have a capacity to hold at least one twelfth as much as the system contains of water. In filling the system, as soon as the water reaches the level of the bottom of this air chamber it should be shut off and the air chamber hermetically sealed, with a safety valve placed at the top. Then, as the water expands through the heat it compresses the air in the air chamber, and the system is under pressure and the water is heated to a higher temperature accordingly. The safety valve on the top of the air chamber is weighted to maintain a pressure as desired. The value of the safety valve largely depends upon the material used in its construction. The United States Government requires that all safety valves used on any apparatus in the Government service shall have nickel seats to prevent the valve from becoming stuck in its seat by corrosion. The safety valve used on the average heating plant is made of some alloy of brass.

tract was his if he would meet the price which was mentioned, and was about \$200, or 20 per cent. lower than his. The friend argued that the plant could not be installed to heat the house for the money, and that if he could get it done to go shead and no hard feelings would result. A pressure system was installed with the air chamber, in which was fixed a safety valve set at 60 pounds and from which a 1 inch overflow pipe ran to a sink in the kitchen, so that in case of heavy firing, the pressure being excessive, it might be detected by the water flowing in the sink and arrange-menta made to check the fire. The heating plant was fed with water from the city water supply, lead pipe of A A A gauge being used for the purpose, a heavy joint being wiped on the brasa nipple which connected with the boiler A stop cock was placed in the lead pipe a few inches from the boiler. After the system was filled the stop cock was closed, and one night after everybody was asleep, the weather moderating and the fire having been fixed for more severe weather, an excessive pressure was developed and, as a result, the lead pips between the brass nipple and the stop cock swelled to abnormal propor tions and finally burst, draining the whole heating plant of water. Fortunately considerable noise was made in doing it. After learning the cause of the trouble, this heating plant was remod. eled to one of the open tank character.

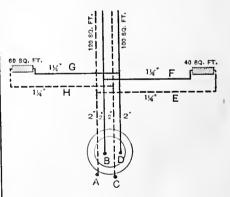
The reprehensible practice has been followed in some cases of overloading the safety valve, so that the water may be raised to a higher temperature to make up for insufficient radiation in some room.

## Exeter Hot Water Union Radiator Valve.

The Exeter Machine Works, 32 Oliver street, Boston, Mass., are putting on the market the Exeter quick opening hot water union radiator valve, a broken view of which is shown in the accompanying illustration. This valve is referred to as having all the merits of self packing, so the stuffing box can be packed at any time without shutting off the water. The body is heavy, symmetrical and of the best steam metal, consequently it is said there is no danger of twisting it to picces while connecting. The disk is cast brass, with by-pass to insure circulation. The general features of the valve will be understood by inspecting the cut. The valve is made in five sizes, from 4-inch to 2 inches, and in various finishes.

#### A Heating Problem.

From T. F. C., Port Henry, New York.—Please place the following inquiry in The Metal Worker. I submit a diagram of a part of a heating ayatem that gave trouble. The lines A and B show return and flow pipes, 2 inches in size, with 1½ inch branches to a 40-foot radiator, shown by the lines E and F, taken from the top of the main in a proper manner. The mains A and B continue on and supply two more radiators, containing 120 feet of surface. C and D are other 2-inch flow and return mains, from which the 1½-inch branches G and H are taken to a 60-foot radiator. In the pipes G and H is where the job fails to work. The mains C and D continue on and supply two radiators, containing 100 feet of surface. In firing up the system all pipes become hot, A and B working in fine style, but C and D become cold after supplying the first 60-foot radiator, and there the return becomes hot and acts as though it was the flow. This is the way I found the job. I would



A Heating Problem.

like to hear from the readers of The Metal Worker where the trouble lies and how to correct it.

#### HEATING NOTES.

A FOLDER issued by the Niagara Radlator Company of Buffalo, N. Y., with works at North Tonswands, N. Y., is a neat little publication that will be appreciated by the steam fitters and friends to whom it is addressed. Illustrations of the radiator are presented and a few particulars given of its construction, as well as the radiating surface per loop.

THE A. J. BENNETT PATENT RADIATOR ATTACHMENT COMPANY, Woonsocket, R. I., issue a neat price-llst of

the Comfort foot rest, of their manu-There are two notable things facture. about this list, the more important being that it announces a reduction in price of the Comfort foot rests on and after January 1. A table gives prices of the different parts in various finishes. The other notable thing about the announcement is the style of its presentment, being printed in gold upon a black card, giving a very handsome effect. In explaining the reduction in price they say it is not on account of poor sales, but because they are satisfied that the former list was too high and they are now prepared to manufacture the goods cheaper than heretofore. The circular may be had on application to the company.

THE FOWLER RADIATOR & MFG. COMPANY inform us of their intention to move their main office from 435 North Broad street, Philadelphia, to their radiator works at Norristown, Pa., on February 1.

A STRIKING ADVERTISING CARD is being distributed by the Cincinnati Screw & Tap Company, Cincinnati, Ohio. The 26 letters of the alphabet, printed in red, begin as many statements of this company concerning their product and the quality of their goods.

THE HOME HEATING & LIGHTING COMPANY of Toledo, Ohio, were incorporated by Homer T. Taryan, R. W. Smith, Irving B. Hiett, E. L. Barber, W. B. Geroe and J. F. Zahm. The capital is \$30,000.

THE F. W. LAMB COMPANY have been incorporated at Chicago, with a capital stock of \$20,000, for the manufacture of ateam and water warming apparatus. The incorporators are Eugene Garnett, Howard M. Carter and William Garnett, Jr.

THE W. H. PAGE BOILER COMPANY, Norwich, Conn., call attention to the omission of the address of their New York house, Dubois & Darrow, 61 and 63 Gold street, in the article describing the All Right and Volunteer boilers in The Metal Worker, December 15.

JAMES A. HARDING writes us from Vineyard Haven, Mass., that he has made an engagement with the Paul Steam System Company of Boston, Mass.

AT A MEETING of the Board of Managers of the American Society of Heating and Ventilating Engineers, on Wednesday evening, it was decided that the opening of their first convention should be on Tuesday evening, January 22, 1895. This arrangement is made in order to give out of town members a better opportunity to reach New York. It is probable that the president's address will be read at this session and that the other sessions will be in the afternoons. Communications to the society should be addressed to Post Offica Box 1818, New York.

The Standard Radiator Company, Buffalo, N. Y., have opened a branch house at No. 206 Centre street, New York City, in charge of John I. Leitch. C. F. Gessert, 42 Dey street, who has handled the Standard goods in this market as a jobber, will, however, continue to do so, having, we are advised, contracts with the company for 1895.

The British Columbia scaling vessels have made a record catch this year, bringing in 95,000 skins, valued at about \$1,250,000. Last year's catch did not exceed 70,000 skins.

#### SCRAP.

THE BRITTON ROLLING MILL COMPANY, Cleveland, Ohio, advise us that they have absorbed the Cleveland Tin Plate Company, purchasing their machinery and their trade-mark, "Buckeye." They have now a complete plant for the manufacture of tin plates, equipped in the best possible manner with all the latest improvements. The company will manufacture both bright and roefing plates in all grades, and will roll their own black sheets. They have two tin mills now in operation and two more in course of construction. Their plant will probably start up shortly on a non-union basis.

BLACK DIAMOND TIN PLATE WORKS, 51 and 53 Laurel street, Philadelphia, Henry W. Scattergood, proprietor, are running full with four improved tinning machines of home design, which are reported to be very efficient.

THE ERECTION of the tin plate plant of the Montpelier Sheet & Tin Plate Company, at Montpelier, Ind., is reported to be progressing satisfactorily under the direction of Superintendent Harry Herbert. The machinery is being rapidly installed, and the company hope to have their works running by February 1.

WALLACE, BANFIELD & Co., Limited, Irondale, Ohio, have about three-fourths of their plant in operation with nonunion workmen, and expect to have their entire works running on a similar system by the first week in January.

THE GREAT WESTERN TIN PLATE COMPANY of Chicago have leased the Joliet Sheet Rolling Mill Company's plant, at Joliet, Ill., which has been idle for the past year. They will commence the manufacture of tin plate there in the near future.

CHICAGO TIN PLATE MFG. COMPANY of Chicago have gone out of existence. The company were dippers of black plates.

THE TIN PLATE WORKS now being erected at New Kensington, Pa., by Goldsmith & Loewenberg are progressing rapidly. It is expected that they will be in operation by March next. The concern will incorporate under the title of the Pennsylvania Tin Plate Company.

THE TIN PLATE PLANT now being built by the La Belle Iron Works, Wheeling, W. Va., will be ready for operation about April 1.

A DISPATCH from Elwood, Ind., to the Cincinnati Commercial Gazette atatea that a large tin plate factory has been secured for that city, which will employ 300 men and manufacture 3000 boxes a week. The company, who are capitalized at \$200,000, are officered as follows: President, George L. Rouse, St. Louis; vice-president, J. H. De Hority, Elwood; treasurer, C. C. De Hority, Elwood; treasurer, Edwin F. Stevens, Elwood. The plant will be thoroughly equipped to manufacture the black plate from steel billets, and take the sheets through all the different processes until it is finished tin plate. The rolling mill department will, it is claimed, be the largest in the State.

THE ATLANTIC STEEL & TIN PLATE COMPANY, Atlanta, Ind., will have four of their eight tinning pots and three black plate milla, with a daily capacity of 450 boxes, in operation by January 1. The company expect to make only one brand of bright charcoal, coke and terne plates, to be named "Atlanta."

THE AMERICAN SHEET IRON COM-PANY, Phillipsburg, N. J., are now opperating their new mill for the manufacture of black plates for tinning and stamping purposes.

THE ELLWOOD TIN PLATE COMPANY, Ellwood, Pa., are seeking a large number of non-union workmen, including rollers, doublers and heaters, for their tin plate mill.

ALL THE OLD FASHIONED tin and terue machines at the works of the Phillips Tin Plate Company, Philadelphia, have been replaced by the Newbold Phillips automatic adjustable machines, by means of which a much finer finish is said to be given to the plates, while the product is doubled. The old style plekling vats are now being removed to give place to an automatic Newbold pickling machine, from which crates will be run overhead to each set.

THE LEWIS FOUNDRY & MACHINE COMPANY, Pittaburgh, Pa., have just finished shipment of all the machinery for the rolling mills of the Atlanta Steel & Tin Plate Company, Atlanta, Ind. This machinery is in all probability the heavlest ever placed in a tin mill, and the Atlanta company express themselves as being well pleased with the character and appearance of the work. The rolling mill building of the Atlanta Steel & Tin Plate Company is about completed. It is of iron, 80 x 300 feet in area.

THE National Labor Tribune, Plttaburgh, Pa., desires, says the Cincinnati Commercial Gazette, to correspond with tln mill rollers, doublers, heaters, machinists and blacksmiths who may deaire to take stock in a new co-operative tin mill soon to be started.

THE PLANT of the Ellwood Tin Plate Company, Ellwood City, Pa., has been put in operation with non-union men. At this writing the firm have from six to nine crews working and do not anticipate any serious trouble in getting sufficient skilled labor to operate their plant to full capacity. It is stated there is a very strong disposition among former union men to acknowledge their defeat and take positions in non-union mills away from their former location.

THE DEADLOCK in the Welsh tin plate industry continues. Seventeen manufacturers held another meeting, at Swansea, last week, at which they unanimously decided that unless the men accepted a reduction of 20 per cent. in their wages, they would be compelled to close their works at the end of the year. Late advices indicate, on the other hand, that many of the makers seem inclined to play for their own hand and make the best terms they can with their workmen.

A SHIPMENT of 545 tons of the plates, valued at over \$30,000, left Glasgow, Scotland, last week in a sailing vessel bound for Victoria, British Columbia. These plates will be used for packing salmon at the canneries on the Fraser River.

Immigration into the United Statea during the year just closing, judging by the reports of the Bureau of Statistics for the first 11 months, will be barely 250,000, or not more than half the average annual immigration for the past 25 years. So far, this year's immigration has been 233,890, as against 480,270 for the 11 months of last year ending November 30. The recent condition of depression in trade and industry is accountable for the falling off.

## PLUMBING and GAS FITTING.

## English and American Plumbing.

It is interesting to read the following remarks on the practice of plumbing bere and in England, that appeared in a recent issue of the London Decorators' Gazette:

Although one need have no hesitation in saying that in no other countries in the world has sanitary plumbing been brought to a greater state of perfection than in England and America, it would, however, entail a considerable amount of risk, probably, to attempt to decide which of the two nations takes the lead in these matters. There can be no doubt that our cousins claim the credit of "licking creation" in this as in most other things which they take in hand, and if we are to judge by the get up of many of their very elaborate sanitary fittings there is much to be done yet in England before it can be said that we are keeping pace with the Americans.

So far as the general systems adopted by each country are concerned, it is very remarkable to notice how the one differs from the other both in principle and practice; and more especially is this the case in the materials used for carrying out plumbers' work. Although the title of plumber is derived from the material with which he is supposed to be most familiar, were it not for the fact that the American workman inherited it from his English progenitors it would have but little meaning on the other side of the Atlantic, for, as compared with English plumbing, lead plays but a very insignificant part in American plumbera' work. Certainly some years ago lead was used to a considerable extent for waste, ventilating and service pipes, but of late years iron, copper and brass seem to have almost completely taken its place, while for roofing purposes it never appeared to commend itself to the architects of American cities.

Some few years ago there was some indication of a movement in this country, with the object of substituting iron for lead in first-class plumbers' work. Iron has, of course, been used very extensively in different parts of the United Kingdom for most of the purposes for which lead is used in plumbers' work. But it has almost invariably been regarded as simply an economical method of doing work on account of the iron being cheaper than lead. Not that it really is so when the work is done substantially, because when iron is used of a proper weight, having some sort of protective material to prevent rapid oxidation, and suitable fittings and connections are provided, it has been found that one material is not any more advantageous, from a financial standpoint, than the other. The result is that the use of iron soil pipes, for instance, on what is considered first-class work is now comparatively rare. In fact, the demand for lead in sanitary plumbing work in this country is undoubtedly greater than ever, notwithstanding the many objections which have been urged against its use. While no one can deny that there is a certain amount

of danger attending its use for cisterns for storage, and pipes for the distribu-tion of water for dietetic purposes, yet if it were decided to no longer use it for this purpose it would not materially affect the demand for lead, considering the many other parts of the work where it can be adopted with decided advantage. With regard to roof work, although z'nc at one time seemed to threaten to drive it out of the market, it still holds its own in all classes of work above what may be termed small property It must, however, be pointed out that recently a more expensive ma terial has become a rival to lead for roofing metal. Copper has been so extraordinarily cheap during the last few years that in several instances the coppersmith has ousted the plumber, and has laid copper in gutters and on flats of a substance, which, although much lighter than lead, is calculated to prove the more durable metal, and at the same time at less cost per foot. Many years ago copper was used to a very large extent on large and important buildings, where expense was no object, with excellent results, as many examples testify at the present day. But in those days, while lead work was less expensive, it was always looked upon as a substantial and particularly suitable material for all parts of roof work.

#### TRAPS AND VENTS.

THE PRICE LIST issued by the James Robertson Mfg. Company, 30 Hanover street, Baltimore, Md., informs the trade that the firm have just added to their plant one of the latest improved hydraulic machines for manufacturing lead traps and bends. The circular is a nest one of a dozen pages, presenting illustrations of the various forms of traps and bends, extra long traps and extension bends, together with full price-lists of the goods.

JULIUS E. BREITHAUPT died at his home, 51 North Genesee street, Utics, N.Y., isst week, of consumption in the forty-eighth year of his age. He came to this country from Germany in 1875 and has since been engaged in the plumbing business.

J. ARTHUR FULLER has purchased J. C. Sisby's interest in the stock, good will, & ..., of the firm of Silsby & Sirgent, Sunspee, N. H., this miths, plumbers and general hardware dealers.

PETER M. MOFFAT of 181 Keap street and J. J. O'Connell of 398 Dean street, Brooklyn, N. Y., are on the new elegible list for chief inspector of plumbing, the former with a rating of 95.33 and the latter with 92.33.

Joseph Irr, accretary and treasurer of the Examining and Supervising Board of Plumbers and Plumbing, Buffalo, N. Y., recently asked Corporation Counsel Laughlin if a plumber who passed a verbal examination last year, but to whom a certificate of competency was never issued, could be required to submit to a further examination before receiving such a certificate. Mr. Laughlin has replied by stating that until the

certificate of competency prescribed by the statute is actually issued and delivered, a plumber may be required to submit to such reasonable examinations as to his experience and qualifications as the board deems proper.

H. MUELLER MFG. COMPANY, Decatur, Ill., are contemplating the building of a larger factory in order to supply the demand for their line of plumbers' supplies, which, they state, is rapidly outgrowing the capacity of their present quarters.

The Airens & Off Mfo Company, Louisville, Ky., have recently added the manufacture of plumbers' enameled iron ware to their line. They are now making a high class of white enameled bathtubs, a new industry in the South.

R. M. Wilson, manufacturer of plumbers' supplies, Rome, N. Y., has erected a new three-story building, 60 x 100 feet, as an addition to his establishment.

CHARLES O. F. YOUNGSTROM, tinsmith and plumber, has removed his business from G.endale to Phenix, Ari., in order to have a larger field to cater to, and, we understand, is already meeting with very encouraging results.

STEEL CLAD BATHTUBS, the manufacture of which was instituted by George Booth of Toronto, Outario, are now made at four factories—one at Detroit, one in New York City, one in Toronto and one in London, England—and we are advised that the average output is about 1000 per month.

The Metal Worker acknowledges the receipt of an invitation, through the courtesy of Wm. Jacobi, to the First Promensde Concert and Ball of the Master Plumbers' Association of Newark, N. J., to be held at the Krueger Auditorium, on Tuesday evening, January 15, 1895.

In the article describing the Shepherd trap in *The Metal Worker*, December 22, an error occurred in the address of the manufacturers, the Shepherd Sewerage System Company, which is at 61 Beekman street, New York. In securing the valve against the seat, a special non-corrosive locking device is used which is not shown in the sectional view that appeared.

THE CALENDAR issued by the Folding Bath Tub Company of Marshall, Mich., is an exceptionally beautiful piece of color printing. A couple of children leaning over a fence are represented in a most artistic manner, the color being delicate and the drawing good. The bunch of forget-me nots that the small boy holds in his hand has, we presume, a bearing on the wares of the Folding Bath Tub Company.

MECHANICS' SUPPLY COMPANY, Quebec. send a combined foot rule and calendar, calling attention to their line of Tools and Supplies for plumbers, gas and steam fitters. The rule is of paper, four fold, tastefully printed with imitation brass ends; having inch markings on one side and the dates of the year on the other side.

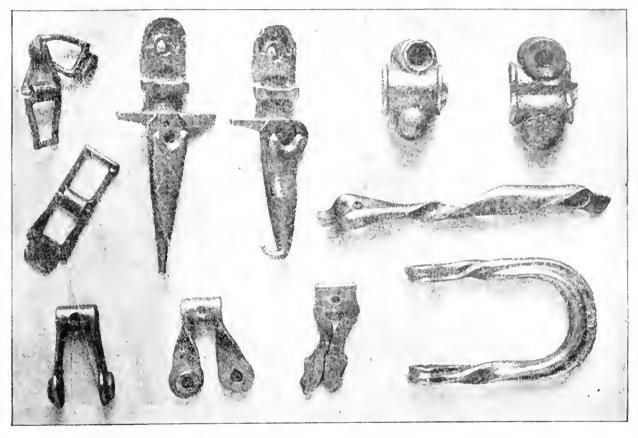
Malleable Castings from Coke Pig-Iron.

References have been made in these columns, says The Iron Age, from time to time regarding the increasing use of coke pig iron in producing malleable eastings. The prac-

point, which is that both the furnace men and the foundrymen co-operated with each other in the experiments made during the first stages of this new departure, and when it was necessary to be thoroughly satisfied upon every point.

Illustrations are presented herewith of a number of samples of malleable

ples were all hammered or twisted cold, and they were not selected, but were taken out of stock indiscriminately. These eastings contain 85 per cent, of coke fron, made by the Illinois Steel Company, for whom Pickands, Brown & Co. of Chicago are sole sales agents. They were piencers in introducing coke Bessemer to the malleable trade.



TESTS OF MALLEABLE IRON CASTINGS MADE FROM COKE IRON.

tice is not referred to as entirely new. Makers of malleable castings have for a long time experimented more or less with coke iron in the endeavor to substitute it for the considerably dearer Lake Superior charcoal iron. Nevertheless, it is but recently that coke iron has secured a substantial footing in the malleable trade. The beginning of this new growth dates back about three years to experiments made by Western malleable makers with coke Bessemer. Up to that time the attempt to use coke iron had been confined to the mixture of a high quality of foundry iron with the usual char coal brands, which sometimes gave fair results and at other times did not. But when Bessemer iron began to be introduced in the trade the good results became apparent immediately. Some little uncertainty exists as to the proper parties entitled to the credit of discovering the adaptability of Besse-mer pig iron for this purpose. The malleable foundrymen state that they first ascertained as nearly as possible the elements required in pig iron for their work, after which they began to experiment, and with the aid of the furnacemen achieved success. The furnacemen claim that they knew from their familiarity with the analysis of pig iron that coke Bessemer contained the same elements in about the same proportions as the best Lake Superior charcoal, and they, therefore, confidently pressed the former on the attention of malleable iron makers. However, there is no doubt upon the main |

castings made by the Northwestern Malleable Iron Company of Milwaukee, Wis. These castings are mainly shown in duplicate, a perfect casting being connected with one which has been

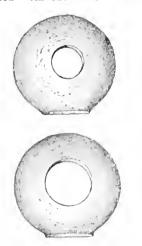


Fig. 2.—Hole Enlarged by Drifting.

aubjected to torture. It will be seen that the latter have endured very severe punishment without injury. They do not show the slightest indication of giving way at any point. The button, which has been swaged out, is considered a rsmarkable test. The hole has been enlarged nearly three times, and the dismeter of the button increased accordingly. The metal showa really wonderful tenacity. These sam-

Frederick W. Slvyer, president of the Northwestern Maileable Iron Company, who has kindly supplied these castings for our purpose, says: "We have made excellent castings wholly from coke iron, and see no reason why this is not practicable. Our experience has proved it to be so. With the cooperation of the furnaceman, and knowing the elements required, in our opinion coke iron is the ideal metal for maileable purposes. The composition of the metal we are using at the present time is about as follows: Silicon, 1.65; manganese, 0 60; phospherus, 0.00; sulphur, a trace. There are several advantagea in the use of this kind of metal, among which is a more uniform quality than we have secured with charcoal iron. Another advantage is the fact that the castings anneal more readily. With an analysis of every car of iron we receive we are enabled to handle our mixture intelligently and with uniform results. To insure accuracy we make a separate pile of each car as it is unloaded, the analysis eard being before us all the time when our mixture is being made up. After having proved the constituent elements which are necessary to accomplish the results desired, and depending on the reliability of the furnace for the analysis, we are thus enabled to produce a uniform quality of castings. We think the samples sent you, treated as they have been, should remove the prejudice which perhaps still exists in the minds of some as to the desirability of using coke iron for malleable purposes."

## THE RETAIL STORE,

The Wanted Oil Can.

Illustrations are presented herewith of a new oil can for domestic use which is being manufactured by Fred. F. Bisshown in Fig. 1, a rubber tube is used when filling a lamp from the can. Unscrewing the top of the can exposes the pump, as shown in Fig. 2. Special attention has been given to the pumping



Fig. 1 .- The Wanted Oil Can.

choff, Libertyville, Ill. The can is a system, so that the can is capable of made of the best No. 27 gauge steel, being used without any waste what-galvanized. In the can is capable of being used without any waste what-galvanized.



Fig. 2.—Use of Tube and Pump.

bossed, which is done to strengthen the body of the can, and at the same time for it durability, cheapness and econmakes it handsome in appearance. As | omy.

#### Brooklyn Lamp Radiator.

The cut here shown represents a lamp adiator, put on the market by Silver & Co., 304-310 Hewes atreet, Brooklyn, and 20 Warren street, New York. The radiator is designed to be placed on a lamp after removing the glass chimney. The radiator is described as having an incide of the street of t inside drum, which causes a forced draft of air to pass in and out between the cylinders, producing an active cir-



Brooklyn Lamp Radiotor.

culation of heated air. The top is of aluminum, removable for boiling water and for cooking purposes. Parlor lamp radiators are 14 inches high and 6 inches in diameter. For mammoth lamps the radiator is made 18 inches high and 7 inches in diameter. The manufacturers state that the radiators will comportable. atate that the radiators will comfortably heat a room 20 feet square in cold weather, and that they are designed for use in dining rooms, offices and summer resorts, and wherever a moderate heat is required without flue connection.

THE MERRY CHRISTMAS SOUVENIR sent us by the Sickles, Preston & Nutting Company, Davenport, Iowa, takes the form of a portfolio of six art studies, being reproductions of recent paintings. The work is beautifully done, and its subjects cover various scenes of country life and landscape.

#### P. & H. Lawn Sprinklers.

Plenger & Henger Mfg. Company, St. Louis, Mo., formerly the Ette & Menger Mfg. Company, are putting



Fig. 1.—Park Lawn Sprinkler.

lawn sprinklers on the market of which the accompanying cuts are representations. The Park Sprinkler, as shown

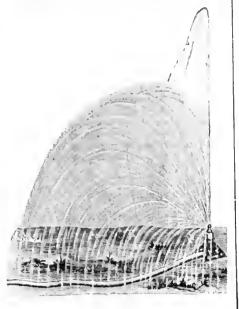


Fig. 2,-Half Circle Spray.

in Fig. 1, can be adjusted to throw a half or full circle apray, as in Figs. 2 and 3. It is remarked that the aprinkler has no revolving parts to leak



Fig. 3 .- Full Circle Spray.

or to wear out; that it can be adjusted to throw a spray as light as steam or as heavy as the area of the supply pipe will permit; that it has no small holes

to clog, and that it can be moved about the lawn while in operation without turning off the water. The sprinkler shown in Fig. 4 has the top and arms made of brass, polished, with japanned standard and legs. It is explained that the sprinkler is a combination of their Japanese and Pacific sprinklers, mak-

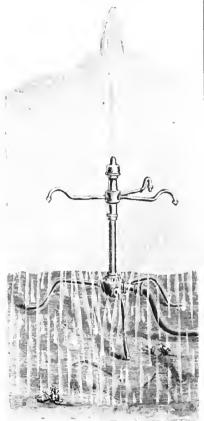


Fig. 4.—Imperial Combination Lawn Sprinkter.

ing a fine effect, and that each one is guaranteed to give satisfaction. The sprinkler is made with three and four arms; and is also made with a high stand.

#### MEMORANDA.

The Prodress Stove & Tin Works of Louisville, Ky., have issued from the press an illustrated catalogue devoted to some of their leading lines of manufacture. The volume is made up of 136 pages, and is of a size to permit the use of a number of cuts on a page. The engravings illustrate pieced, stamped and japanned tinware, wooden ware, granite iron ware, galvanized iron ware, wire goods, coffee mills, tinners' stamped trimmings and miscellaneous supplies; sheet iron, tin plate, metals, &c., stove hollow ware, coal vases, shovels, tongs, pokers, fire sets, refrigerators, fire clay chimney, flues, &c.

THE STAR MFG. COMPANY, Canton, Ohio, are placing on the market the Crystal Valve oil and gasoline cans, which, as their name implies, are of crystal glass. The novel feature is the valves, which consist of two small balls, one each in the vent at the top and in the spout, which automatically close these openings when the can is not in use, rendering both, it is said, air tight. Besides being automatically self closing they are referred to as non-explosive, air tight and clean, as well as of low price.

A CALENDAR that Grier Brothers, 60 Second avenue, Pittsburgh, Pa., are distributing to the trade for the coming

year is decorated with a realistic picture of a foot ball field. The calendar calls attention to tinware which Grier Brothers manufacture and a miner's lamp and dinner pail are a couple of articles illustrated. The 12 leaflets at the bottom show the days of the month and the moon's phases.

GATE CITY FILTER COMPANY, 35 Murray street, New York, are bringing out a medium grade of Pottery in connection with their Stone Filters, which is intended as a connecting link between their gray stoneware and china. It is stoneware, uniformly molded so that the several parts always fit, with a bluish tint and decoration, and is offered as a grade better than the common stoneware, much more attractive in appearance, at a moderate advance in cash.

Laird Clowes, one of the ablest English authorities on naval matters, has given his ideal of a new type of fighting vessel, a 101 gun ship. What is needed, he says, is great speed, moderately thick armor and numerous quick firing guns. The British have nothing of the kind in their navy, while the French have attempted it in five of their ships. This is Mr. Clowes' picture of the most efficient kind of modern fighting vessel: "A ship of from 10,000 to 12,000 tona diaplacement, carrying 6-inch ateel armor all over her, ateaming 22 or 23 knots, and mounting some such armament as 16 6-inch guns, 20 4.7 inch guns, 20 3-inch 12-pound guns, 20 6pound guns, all quick firers, with 25 Maxima of a caliber somewhat larger than the one in present service use. Then we should have a 101-gun ship, against which no man-of-war in existence could stand up and from which no man-of-war in existence could escape."

The estimates of appropriation required for the service of the fiscal year ending June 30, 1896, sent to Congress by the Secretary of the Treasury, aggregate \$410,435,079, as against \$411,879,041, estimated for the current fiscal year. The following table exhibits the estimates for the various departments for 1895-1896, together with those for the present fiscal year:

	Estimates	Appropriations
Departments.	for 1896.	for 1895.
Legislative	\$8,336,742	\$10,377,617
Executive		191,024
State		2,008,218
Treasury	138,487,281	133,786,362
War	54,855,629	55,296,820
Navy		26,726,752
Interior		173,825,971
Post Office		2,468,982
Agriculture		3,227,252
Labor		170,011
Justice		7,730,399
Grand totals	. \$110,435,679	\$415,760,943

A press cable dispatch from Liabon states that the Portuguese Government has decided to construct a navy, and with this object in view the aum of \$600,000 yearly will be provided for 20 years. Tenders will be invited from shipbuilders in the United States and other countries.

Secretary Herbert, acting on the recommendations of the bureaus of Steam Engineering and Construction, has decided to contract for the building of a submarine torpedo boat of the Holland type.

We are informed by the St. Louis Stamping Company, St. Louis, Mo., that their tin plate plant is now running full on a non-union basis, and turning out plate equal to anything they have ever produced.

## STOVE TRADE NOTES.

A Fleid for the Furnaceman.

In the opinion of a manufacturer of hot air furnaces, who also manufactures steam and hot water heaters, the furnaceman is especially well qualified to enter the field of steam and water heating. By training and experience his judgment of the difficulty of heating different rooms and buildings will naturally give him advantage in com parison with those who enter the field as expert pipe fitters but new to heat-This knowledge is an all important qualification, and some very suc-cessful men rely rather on their experience than upon the rules for calculating the surface required, though the rules are a basis that cannot be departed are a basis that cannot be departed from with safety, except by those having exceptionally well trained judgment. If a building would require a large furnace, which the furnaceman would soon discover, it would require a large boiler. A large boiler, like a large furnace, will carry large piping, and a room that would require a large hot air pipe would certainly require a large steam or water pipe. If any advantage would be gained by a short hot air pipe, and it was necessary, the same would be true of the other sys tems. Hot water and hot air rise and flow in a very similar way, their movement being due to gravity; yet a plumb-er made the mistake of running a main from a boiler up near the ceiling of a cellar, then dipped down to pass under a deep girder, making a trap. This was done to gain head room in the celiar and prevented the job from working, and a hot water expert was summoned who was also a hot air expert. His comment was that a furnaceman would never have made such a mistake. Yet it is natural in carrying the cold water supply pipes through a building, and would have made no trouble. The same rules for direct runs, and the avoidance of friction in the hot air pipes by a sharp pitch, hold good in hot water pipe fitting. It is true that any man who enters this field will have much to learn, and will have to go slowly and consult with experienced men, and it is equally true that a successful hot air furnaceman has many invaluable qualifications for the work.

#### The St. Paul Stove Works,

with office and salesroom at 71-73 West Seventh street, and foundry at Arthur avenue and Concord street, St. Paul, Minn., have issued an attractive catalogue of 40 pages relating to the Early Breskfast stoves, ranges, heaters and furnaces. The binding is in paper covers, with side title of typographical design. The opening pages are devoted to a few testimonials from some of those who have used the company's goods, followed by directions for burning lignite on the patent grate used in connection with the company's goods. This grate is a special feature of the company's specialtics, and is designed for burning the native coal of North Dakota. It is stated that this lignite

"makes an intensely hot fire without scot, smoke or smell, and burns up clean, leaving only a fine ash." The grate employed is illustrated and described at some length, after which attention is invited to the Early Break-fast lignite steel range, having six boiler holes, 14 inch feed or broiler door, capacious oven and ample flue. The stove is made in several varieties, three of which are shown in the cata logue. A new cast iron range which the company brought out the past season, and with the fire pot so constructed as to use the lignite grate, is the B Series of the Early Breakfast line. This is made in five sizes and a number of modifications. The F Series is a fourho'e cook with large square oven, and with doors on each side. The M Series, which has been on the market for some time, is a four-hole cook intended for burning soft coal. This is made in three sizes and the usual modifications. Among the heating stoves we rotice the Lion Oak, made with patent lignite grate, heavy fire pot, large feed doors with separate upper mica section, substantial square base and large ash pan. The Lignite Faultless is a surface burning base heater, made in three sizes and embodying the latest improvements. Another surface burner is known as the Another surface burner is known as the Faultless, and is also made in three sizes, while the Art Faultless, a direct draft surface burner; the Frost Killer, a sheet iron cylinder stove, and the Faultless Cannon, complete the assort ment. The Stafford hot air furnace is likewise illustrated and described. An announcement at the close states that the goods illustrated in this catalogue are only a small portion of the extensive line of Early Breakfast stoves and Faultless heaters manufactured by the company.

## The Western Stove & Mfg. Company

of Milwaukee, Wis., send us a copy of their first illustrated catalogue and price-list of gasoline stoves. It is a price-list of gasoline stoves. It is a neatly arranged volume of 48 pages, illustrated with numerous engravings and bound in colored paper covers. In their greeting to the trade the makers refer to the fact that their machinery is of the latest and most improved design, that they employ skilled and experienced workmen and that they purchase the best materials. After referring to some of the special features embodied in the line of goods which the company manufacture, attention is given to the Governor low junior single valve gaso-line stove. This is made in several sizes ranging from one to three burners, and provided with the company's improved lift out safety tank. Next in order is the Governor high junior single valve stove, made with and without step; the Princess low and high junior stoves, made in a variety of sizes and embodying features which cannot fail to interest the trade. Several pages are then devoted to the Princess single generator gasoline stove, which is provided with a powerful burner of simple construction. It has a sub burner de-

vice which generates gas for the other burners and permits of any one burner on the stove being used without operating the generating burner on top of the stove. The single generator stoves are constructed of steel, making them strong and durable, and are neatly japanned and ornamented. All are provided with the makers' improved lift out tank, their patent burner cap and their regular grate. The Princess is shown in several sizes ranging from one to three burners, and with and without step at the side. Under the same name the company make a line of larger stoves embodying the latest features and arranged with two, three and four burners in the top plate, some sizes being made with and others without the step. Single and double valve burners are illustrated and a repair list given, by means of which duplicate parts can be ordered. Attention is also given to gasoline torches, ovens, &c. The catalogue concludes with a price-list of ovens and directions for taking care of gasoline stoves.

#### ODD PLATES.

THE CALENDAR FOR 1895, which is being distributed with the compliments of the estate of P. D. Beckwith, Dowagiac, Mich., is a handsome example of the printer's art. Running the long way of a card measuring 14 x 11 inches, is a view of Holy Cross Abbey, England, the picture being printed in colors. The effect is artistic and will serve to find for the calendar a place near the deak of the dealer, instead of the 12 leaves which constitute the calendar proper being torn off and the rest thrown in the waste basket. The typographical features are neat, the lettering being in clear type so that it can be seen at a distance. The 12 leaflets are printed in black on a white ground and occupy the lower central portion of the card, which may be hung up by a red silken cord provided for the purpose.

E. L. CALELEY, 945 Ridge avenue, Philadelphia, is using a series of six blotters, embellished with colored views of World's Fair buildings, to call attention to his facilities for turning out good stove patterns.

THE WILLIAM G. FISCHER MFG. COMPANY of Cincinnati, Ohio, are distributing to their friends in the trade a series of blotting pads relating to the Fischer steel ranges and stoves. The printing is in colors, and attention is called to the various sizes of goods made and to the fact that illustrations will be furnished upon application. They also furnish repairs for all kinds of cooking and heating stoves, ranges, &c.

WE HAVE RECEIVED, with the compliments of the Detroit Stove Works, Detroit, Chicago and Buffalo, a neat pocket memorandum book, carrying upon the inside covers calendars for the years 1895 and 1896. The little volume is of the style and character which is becoming so popular as an advertising medium, being known as the "daily re-

minder," copyrighted by the Matthews-Northrup Company of Buffalo, N. Y. It is in effect a caiendar, diary and memorandum combined, each page being ruled into seven spaces for the days of the week. At the outer edge of the page is printed the days of the week and month and also the number of those days in the year. Among the early pages are census statistics and rates of postage. There is also a leaf at the front and back of the little book calling attention to the Jewel stoves and ranges made by the Detroit Stove Company, together with information of interest to the trade.

S. CHENEY & Son of Manlius, N. Y., have issued an exceedingly neat calendar for the new year. The white card carries a marine view executed by John A. Lowell & Co., of Beston, and is known as No. 812. Below this are the name and address of the company, and still further down on the card are twelve leaflets for the months of the year, printed in clear black. In the upper left hand corner of the card is a fac-simile of the trade mark of the firm, and a white silken cord is provided for hanging up the calendar.

CARL RABEN, who has represented the Peninsular Stove Company in Iowa for the past three years, will continue to look after their interests in the same State during 1895.

The Barstow Stove Company of Providence, R. I, and with New York office at the corner of Beekman and Water streets, are distributing an illustrated circular of their Novel Bay State range, made in portable form and also for brick setting. The stove has heavy esstings, flat or duplex grate, large ash pan, oscillating oven shelf, right or left hand fire box, and can be furnished with or without plate rack and canopy. It is a substantial six-hole range of attractive appearance and is offered in one size, portable form, and one size for brick work.

Berry A. Baxter, superintendent of the Monarch Stove Company, Mansfield, Ohio, has just returned with Mrs. Baxter from a two weeks' visit to the East, in which he combined husiness with pleasure. Among other cities he visited New York, Philadelphia, Baltimore and Washington. He arranged with the Danville Stove Company of Danville, Pa., and Nos. 284-86 Pearl street, New York City, for a continuace of the agency for the company's goods in the States of Pennsylvania, New York, New Jersey and the New England States. The Danville Stove Company will open a branch in Boston, Mass., from which the trade in that vicinity will be more readily and conveniently supplied with Monarch gas and vapor goods.

The Excelsion Mfg. Company, St. Louis, Mo., advise us that while the weather conditions are against any large business in this country, their foreign trade is in excellent shape. They mention the receipt of an order from Costa Rica, and state that this will doubtless be followed by others from the same locality. Inquiries are also reported from Belgium, and a handsome order is expected from that locality very shortly.

D. M. THOMAS, secretary of the National Association of Stove Manufacturers, has been a very sick man since his return from the West, having been confined to the house and totally unable to attend to any business. He was, however, at his office this week, but he is far from well. His physician

recommends a complete rest for a few weeks and a run to the Bermudas. Mr. Thomas has devoted himself to furthering and projecting many good things for the benefit of the trade in the future, and the anxiety in these matters with constant railroad traveling has used him up. A change of scene and rest, however, will probably bring him around all right.

The Star Coupler Company, St. Louis, Mo., who have just completed their first year of actual business, report that the results have been far beyond their expectations. The increasing demand for their Star water back and boiler couplers has obliged the company to enlarge their factory in order to give increased facilities for the manufacture of these goods and to enable them to fill orders with greater promptitude.

THE HARDWARE FIRM of Barnard, Smith & Co. of Jackson, Mich., make a specialty of Peninsular wrought steel ranges, manufactured by the Peninsular Stove Company of Detroit, Mich. Dur ing the past week or two they have been giving a practical demonstration of the merits of these goods by means of public cooking operations, which were carried on in a large room on the second floor of the building occupied by the firm on West Main street. Expert cooks were busy each day preparing hot biscuits, coffee, &c., and showing interested visitors the manner in which the ranges worked. The daily exhibitions attracted large numbers to the store of the firm, with gratifying sales as a result.

FLOYD, WELLS & Co. of Royersford, Pa., distributed to their friends in the trade a Christmas greeting in the shape of an illustrated folder of unique design. The printing was in colors, and among other things reference was made to the company's line of stoves, ranges and heaters.

THE CHICAGO & ERIE STOVE COMPANY of Erie, Pa., have issued a pamphlet of several pages, illustrating and describing their line of Superb Helper steel ranges, which have been improved for 1895. These stoves are made in a number of atyles and sizes and adapted for all kinds of fuel. The constructive features are of the latest character.

THE ROCK ISLAND STOVE COMPANY of Rock Island, Ill., are to be represented during 1895, in the territory named, by the following salesmen: M. L. Morehouse, in the State of Kansas; A. C. Colton, in Nebraska; F. W. Houck, in northern Iowa, southern Dakota and Minnesota; A. B. T. Moore, in northeastern Iowa, southern Wisconsin and northern Illinois; Orrin Leonard, in central Iowa; S. D. Cleveland, in portions of Missouri, Iowa and Illinois, and A. D. Sparry, in central Illinois.

One of the recent letters received by the Fuller & Warren Company, Troy, N. Y., comes from a customer in Digby, N. S., and contains some flattering references to the company's goods. The writer, who is a wholesale druggist and dispensing chemist, states that he has had in use for 16 winters one of the company's No. 4 Ruby furnaces. He states that he had it stripped and taken apart a few days ago and found the iron work "as good as ever, fire pot sound, and the grate ditto, only they broke the handle by undue pressure."

THE ST. PAUL STOVE WORKS of St. | Paul, Minn., are meeting with a very

rratifying demand for their stoves and heaters, fitted with what are known as lignite grates. This grate has been especially designed to burn the native fuel of North Dakets, and since last July the company have Supped about 660 stoves fitted with these grates into the State named. They are receiving many testimenials of the merits of the stoves and heaters and of the general satisfaction which they have given.

The Michie as Stove Company are distributing adminism combs to their patrons. The combs are of good size and his dismey misds. They are inclosed in neat leather cases, with the company's compliments thereon in gilt letters. Each comb is packed in cotton in a wooden box, together with a highly artistic circular, Hustrated by one of the most famous artists of the day. The circular itself is a memento worth preserving. Appropriate sentiments are printed out the circular.

WE ARE INDEBTED to the Schneider & Trenkamp Company of Cleveland, Ohio, for a copy of an illustrated catalogue and price-list which they have just issued from the press. It is made up of over 70 pages of letterpress, profusely illustrated and bound in dark green paper covers, with side title em-bossed in silver letters. The company state that, as heretofore, they have made numerous improvements in their Reliable stoves for the coming year, and call attention to the fact that they are now manufacturing a full line of ovens which in point of finish and constructlon are in keeping with the high standard of their Reliable line. Among the early pages of the volume are found "eleven reasons why the Reliable gencrator la the best; " numerous illustrations of the device, directions for ordering repairs, price-list of repairs for process stoves, repairs for Reliable generator and individual burner stoves and directions for the care of generator gasoline stoves. The Reliable process stove for 1895 is fully described and illustrated with numerous engravings. Attention is also given to the Reliable process cabinet, the Reliable single generator stove, the Reliable individual burner stove, the Reliable Gem and an extensive assortment of Reliable Juniors. The closing pages are given up to furnaces of various kinds, illustrated descriptions of burners, torches, ovens, steam cookers, stew pans, sad iron heaters, broilers, toasters, &c. A telegraphic code is a feature of the catalogue.

FOLLOWING their Thanksgiving souvenir the Barstow Stove Company of Providence, R. I., last week distributed a Christmas novelty in the shape of a wax taper, intended, no doubt, for use on a Christmas tree. The taper, how-ever, proved to be hollow, and from one end we were able to extract a neat little circular, which upon opening was found to read as follows: "Our candle does not offer light to this wick ed world from the wick part of it, but is simply sent to let you know that we are thinking of you as the Christmas season comes on. We feel grateful for the very nice trade we have had during this generally dull business year of 1894, and we beg to state that our line of Bay State ranges, furnaces and parlor stoves will be more complete for the year 1895 than it has ever been heretofore." The circular concludes with wishes for a merry Christmas and the name and address of the company. This souvenir was designed by the same enterprising concern that was responsible for the other—namely, the Livermore & Knight Company of the city named.

THE PROGRESS STOVE & TIN WORKS of Louisville, Ky., are distributing a sheet metal sign intended for hanging up in the store of the desler. It is finished with a bright polish and embellished with a clock dial in the upper left hand corner, and a picture of the Progress cook stove in the lower right hand corner. An inscription across the top of the sign states that dinner is always on time when using the Progress stove, manufactured by the concern named. A short loop of chain is the means by which the sign is suspended.

The Danville Stove Works of Danville, Pa., are distributing, with their compliments, a very pretty calendar for the new year. It consists of a card messuring about 11\frac{2}{3} x 8 inches, printed in colors and embellished with a central design of rather unique character. This takes the shape of a panel, resting upon a cleverly treated background, while scattered about are little slips, measuring about 1 x \frac{1}{2} inch, carrying the days of the week and month. There are 12 of these, each being designated by the name of the month in bold red letters. Across the top of the card is the name of the company, while below the central picture is the date in red figures, 1895. The card is arranged with a lcop, so that it may be hung upon the wall.

THE ECLIPSE STOVE COMPANY, Mansfield, Ohio, will be represented by the following salesmen, who will cover the territory named: C. A. Munsell in Western New York, Western Pennsylvania and Eastern Ohio; J. S. Cadot in Western Ohio and Southern Michigan; M. J. Weldon in Indians; H. D. Bell in Illinois; W. J. McKay & Co. in Cook County; the Townley Stove Company in Southern Indians and Southern Illinoia; J. C. Bump in Wisconsin; H. N. Wilcox in Iowa and Northern Missouri. The company will have repositories in St. Anthony Park, Minn., under the management of H. E. Cook, who will look after the company's interests in Minnesots, North and South Dakota and in Omaha, Neb., under the management of Oscar Millsap, who will cover Nebraska, Western Iowa and the Black Hills. The Omaha arrangement is a new scheme for the company to reach trade in the territory named.

THE ECLIPSE GAS STOVE COMPANY of Rockford, Ill., have recently been incorporated with a capital stock of \$25,000. The incorporators are Kate B. Roper, George D. Roper and George S. Roper.

THE ROUND OAK STOVE WORKS, Dowagiac, Mich., after a shut down of several weeks resumed operations with a full force on Monday, December 17, at a reduction of 10 per cent. in wages.

A company of Western capitalists has been incorporated to seek for the wreck of the steamer "Pewabic," which was sunk in a collision on the lakes 25 years ago. The wreck is known to contain 500 tons of copper, and carried gold valued at \$300,000. It lies in about 16 fathoms of water, but hitherto all attempts to secure the treasure have failed.

The London Rothschilds are said to be arranging a Chinese loan for \$50,-000,000 on security of the Chinese customs

## HEATING SO PLUMBING.

#### NEW WORK AND CONTRACTS.

F. J. STURN, 926 Broad street, Newark, N. J., has signed a contract for plumbing and tinning the No. 4 Truck House, to be erected in that city. He also has the plumbing and tinning contract for a three-story flat to be erected by Dr. N. M. Robinson.

JOSEPH A. THAIN has prepared plans for an elegant residence on Drexel boulevard, near Forty-seventh street, Chicago, 1ll., for Louis Morris. It will be three stories and basement high, 40 x 65 feet, with stone exterior, slate roof, elaborate hardwood finish, electric light, hot water heating, marble work and all modern improvements, at a cost of \$40,000 to \$50,000.

M. ABBOTT'S SONS, 137 Elghth avenue, New York, have completed the plping in eight houses for Contractor William Sheeley of West Hoboken, N. J., in which he intends to put Abbott's hot air furnaces.

F. L. VESSERIAT, Alliance, Ohio, is placing ateam heaters in the business block of J. Murray Webb.

GEORGE F. MOTTER & Son. York, Ps., have the contract for putting in the steam pipe work at the new building of the York Card & Paper Company. It will require about 100,000 feet of pipe.

L. A. Weston, Adams, Mass., has been granted the contract of plumbing and heating the new Baptist church, to be constructed next apring.

PLANS for ventilating and heating the new High School at Scranton, Pa., were examined by the School Committee of the Board of Control last week. The system is the Smith heating and ventilating system and the inventor, Frederick Smith of New York City, was present at the meeting of the committee. It is estimated that the cost will approach \$20,000. At the next meeting of the board the committee will recommend that advertisement be made for proposals to erect the system under the supervision of Mr. Smith.

THE LOFTUS PLUMBING & HEATING COMPANY, North Adams, Mass., are putting in pipes and heating apparatus in the new Lincoln street shoc factory.

CLEGG & DOUOIERTY, Ottawa, Ill., have been awarded the contract for placing a steam heating plant in the Commercial Hotel at La Salle.

G. II. MARSH, Spencer, Mass., has taken the contract for plumbing the new building of Wright & Harper, at East Brookfield.

MRS. J. E. TEMPLE, New Haven, Conn., will erect a fine apartment house that will have all modern conveniences in elevators, plumbing and heating.

THE A. W. BURRITT COMPANY, Bridgeport, Conn., have the contract, amounting to \$30,000, to build the St. John's Episcopal Church, at New Haven. The heating and plumbing contracts have not yet been awarded.

F. L. Underwood will erect, at Litchfield, Conn., a \$30,000 residence that will have two bathrooms, aix fire places and a heating system.

THE MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY of Springfield Mass., will erect a 130 x 170 foot building with a heating plant in the basement.

- F. C. BLAKE, Mason City, Iowa, has secured the contract for the plumbing of the new Masonic Block.
- S. C. NIGHTINGALE & CHILDS of Boston, Mass., have a large contract for covering the boiler and pipes at the new boiler house of the Coe Brass Mfg. Company, Torrington, Conn., with their Magnesia covering. Sheahan & Groark, New Haven, Conn., the plumbers, are using the Magnesia covering on the steam pipes in the High School Building.

THE STATE BOARD of the Knights of Pythias Home met in special session at the Arcade Hotel, Springfield, Ohio, last week, to consider the recently received propositions for gas fixtures for the new building. The most important contract swarded was to Jardine & Flynn, Springfield, for a gas machine. The contracts for combination fixtures were awarded to W. H. Drayer, Middletown

THE SECOND CONOREGATIONAL CHURCH, at Waterbury Conn., is to erect a new parsonage that will have a plumbing system and will be heated by hot water or steam.

J. IRION is building an addition to his house for a bathroom. The Barlow Bros. Company will put in the plumbing, including a new noiseless closet.

WARD COE is building an \$8000 house at New Haven, Conn., for which J. W. Corbett has the plumbing contract and W. A. J. Smith will use two Kelsey hot air furnaces to heat it.

THE CONTRACT for heating the Masonic Temple, at Hartford, Conn., has been awarded to the Bosworth Heating & Supply Company of that city. They will use 3700 feet of radition and two steel wagon top tubular boilers, which are being built under the direction of Frank Allen, of the Hartford Steam Boiler Inspection & Insurance Company.

THE CONTRACT for plumbing the new Y. M. C. A. building has been awarded to R. E. Hannon, Amesbury, Mass.

J. D. CULVEH, Fairhaven, Vt., is having a steam heating apparatus placed in his building by Wood & Hotchkisa of Whitehall. David Rodd is in charge of the work of putting in the system.

Some Baltimore capitalists have secured letters of incorporation for a company who propose to utilize the water of the Susquehanna River as a means of generating electric power, to bo transmitted to Philadelphia, Baltimore, Wilmington and other points. The incorporators of the Susquehanna River Electric Company are: Moses A. Houseman, Geo. K. McGaw and Wintield J. Taylor of Baltimore, and Chas. R. McConkly of Peach Bottom, Pa. It is proposed to dam the Susquehanna near Conowlingo, Md., and to erect there is large electric power house similar to that at Niagara Falls. Large tracts of land have been purchased near Conowingo and the surveys have been completed for a very extensive plant. Work, it is announced, will be commenced on the dam as soon as the apring freshets are over, and is is ex-pected that the company will be able to furnish power to their subscribers by January 1, 1896.

The trolley mail car system has been extended in Brooklyn.

# TRADE REPORT.

#### The Iron Market.

Pig Iron.—The market in New Yerk is very dull, the demand being light. There is, on the other hand, no exceptional pressure to sell. Lately brokers have made a number of inquiries concerning prices for American Pig Iron for export, but as yet nothing seems to have come of it. We quote \$12 @ \$12.50 for No. 1: \$11 @ \$12 for No. 2, and \$10.50 @ \$11 for No. 2 Plain, standard brands, tidewster delivery. Southern Iron, same delivery, is selling at \$11.25 @ \$11.50 for No. 1; \$10.25 @ \$11 for No. 2; \$10 @ \$10.50 for No. 3; \$10.25 @ \$10.75 for No. 2 Soft, and \$10.50 @ \$10.75 for No. 1 Soft. Foundry No. 4 (Foundry Forge) is \$9.50 @ \$10.

In regard to the Philadelphia Pig Iron market, the indications are regarded as very favorable for a good demand, deliveries being called for with considerable urgency, and when work starts up after the holidaya it is expected that a good deal of buying will be done. At a time like this it is difficult to judge with any degree of certainty what the course of prices will be, but it is the general impression that in three months' time they will show aome improvement. Temporarily, dullness and possibly aome irregularity may be met with, but when business once gets fairly under way it is believed that prices will gradually work toward higher figures. Meanwhile quotations to-day are about as follows for Philadelphia, and at points within 100 miles South or West about 25¢ @ 40¢ less:

 Standard No. 1 Foundry X
 \$12.50
 \$13.00

 Standard No. 2 Foundry X
 11.50
 62
 11.75

 No. 2 Plain
 10.75
 6
 11.00

 No. 1 Soft
 11.50
 62
 11.75

 No. 2 Soft
 10.75
 6
 11.75

 No. 2 Soft
 10.75
 6
 11.00

The actual business placed during the past week in the Chicago market was not large and appears to have been rather evenly divided between Northern and Southern brands. The inquiries for Southern Soft Irons have latterly been increasing and the tonnage in sight is now quite encouraging The business now quite encouraging The business in prospect for Northern Irons, however, is very heavy for completion after the first of the year. Shipments are so heavy at present that the intervention of the holidays is regarded as an advantage to furnacemen, as many foundries will then be closed down for a few days, which will enable furnace stocks to ac-Southern furnaces cumulate a little. seem to be closely run in the matter of shipments, also, as orders are being received for Northern Iron to take the place of undelivered Southern even at a higher price. The market is very firm on everything except two or three of the less known Southern brands. Quotations are given as follows for

Lake Superior Charcoal	\$13,00	0	\$14.00
Local Coke Foundry, No. 1.	10.25	0	
Local Coke Foundry, No. 2	9.75	0	10 (0
Local Coke Foundry No. 8.	9.50	0	9.75
Local Scotch	10.50	0	11.00
Ohio Strong Softeners No. 1	12.60	0	13,∩п
Southern Silvery, No. 1	11,50	0	11.75
Southern Silvery, No. 2	11.25	0	-11.50
Southern Coke, No. 2	10.25	a	10.50
Southern Coke, No. 3	9.75	0	10.25
Southern, No. 1, Soft	10.25	0	10.50
Southern, No. 2, Soft	10.00	0	10.25

 Alabama Car Wheel.
 17.50
 Ø
 18.00

 Jackson County Silvery
 15.50
 Ø
 16.00

 Other Ohio Silvery
 14.25
 Ø
 14.50

In the Pittsburgh district buyers generally are deferring purchases until the new year. Very few sales of Pig Iron are being made and these only for small lota that are needed at once. Foundry Irons are quiet, with prices weak, but unchanged. Several round lots of Foundry Iron for delivery into a considerable part of next year have been sold at very low prices. Quotations are given as follows:

The record of the Cinclnnatti Pig Iron market during the week is devoid of interesting features. In the general run orders have been small individually and insignificant in the aggregate. Pricea are without quotable change, but at the lower level noted last week there seems to be more firmness. There is more confidence and a firmer feeling, and while buyers may be holding off until the middle of January, it is known that large contracts will be placed about that time. Reports from Pipe works and general foundries continue encouraging; the former capecially are running heavy heats. Mills, however, are not conspicuous for activity. Quotations are as follows:

Sonthern Coke, No. 1	89.75 @	
Southern Coke, No. 2	9.03 @	
Southern Coke, No. 3	8.50 @	8.75
Ohio Soft Stone Coal, No. 1	14.50 @	15.0⊍
Ohio Soft Stone Coal, No. 2	14.00 @	14.50
Lake Superior Coke, No. 1	11.75 @	12.25
Lake Superior Coke, No. 2	10.75 @	11.50
Hanging Rock Charcoal, No. 1	16.00 @	16 50
	15,50 @	16.00
Tennessee Charcoal, No. 1	13.00 @	13,50
Tennessee Charcoal, No. 2	12.00	12.50
Bessemer	11.65 @	12.00
standard Southern Car Wheel	15.75 @	10.75
Lake Superior Car Wheel and		
Malleable	14.25 @	14.75
and community of the contract		

The St. Louis Pig Iron market is practically dead. Consumers are deferring their purchases until the new year. There is no change in prices; the effort which was made to shade No. 2 Foundry below \$7 does not appear to have been successful, and this price is now accepted as bot tom. Furnaces have taken the stand that a reduction in prices would not result in any increased business and have wisely refused to shade current quotations. We quote as follows for cash, f.o.b. cara St. Louis:

Bronson & Near, Cleveland, Ohio, and 35 Warren street. New York, have just closed a contract to furnish the Wrought Iron Range Company, St. Louis, Mo., during 1895 over 100,000 pieces of Steel Hollow Ware, which will be supplied with the company's Home Comfort Ranges. This ware is manufactured for Bronson & Near by the Novelty Stamping Company of Bellaire, Ohio, who manufacture also a line of Enameled Ware, for which Bronson & Near are the general selling agents. The above order was secured by A. E. Bronson when in St. Loois last week.

#### Metal Market.

Plg Tln.—The suspension of business during the holiday season in London has operated as a check upon speculation in the New York market. This, in turn, has prevented any wide movement in prices, so that upon the whole affairs have presented a rather flat appearance. Deliveries on contracts have been fairly large, but consumers and interior trade have purchased moderately, and more or less accumulation of stock in first hands has doubtless taken place. Thus far this month about 1678 tons have been landed here. Prices for small lots of Straits Pig from store are unchanged at  $16\frac{1}{2} \oint \bigoplus_{i=1}^{n} 17 \oint_{i=1}^{n} 10$ .

Copper.—Transactions in lngots have tailen off somewhat latterly, and the buying interest is scarcely as brisk as it was during the early part of the month. Still the demand continues sufficient to keep wholesale prices firm. The current quotation for small retail parcels of Lake Ingot is 10½¢. Manufactured Copper is quiet, the demand being confined to small lots for immediate consumption.

Pig Lead.—Some good-sized lots have been sold at the lowest wholesale prices quoted last week. The sales, it is understood, were in good part by speculative holders and a few operators who are interested in forcing prices down to facilitate the covering of outstanding short contracts. Jobbing business has been of a restricted character. For small lots of American Pig 3\$\phi \@ 3\$\phi\$ is about the ruling price. Stocks in Western producers' hands are said to be comparatively moderate. Sheet Lead and Lead Pipe is in fairly active demand, and list prices are well maintained.

Spelter.—Hardly any change has taken place in the market during the week. The demand has been moderate and limited mainly to small quantities, for which 4¢ @ 4‡¢ is asked by jobbing houses and retailers.

Antimony.—Jobbing business is fair and prices vary but little, although leaning somewhat in buyers' favor. About of is quoted for Hailett's and 914 @ 914 for Cookson's, small lots.

Tin Plates.—The market has been dull throughout the week. Orders for future delivery seem to have fallen off to the finest point, while purchases of spot stock have been merely of the hand-to-mouth character looked for at this season. The volume of inquiry is also rather disappointing, and the market, as a whole, exhibits a far from satisfactory nature. Prices, while showing no quotable change, are somewhat irregular, and are inclined to be easy. Stocks in hand, however, are not thought to be at all excessive, and it is probable that any sudden revival in the demand would find the market in somewhat poor shape to meet any heavy call. The feeling seems to exist in the trade that an improvement in the demand for Plates may be looked for after the first of the year, many consumers having postponed buying until that time.

A special Landon cab'e dispatch of December 20 to The Irim Age reports on the British Tin Plate market as follows: Tin Plate business has been extremely lin fiel and the demand is disappointing. Dullness is part'y due to holidays. Westers, bold in fair demand, are exceptionally sleady as to price. The quotations, f.o.b. Swansea, are as follows:

Sheet Iron—There is a fair demand for Black and Galvanized Sheets, and a heavier volume of business is looked for after the first of the year. Inquiries are pretty numerous for future deliveries, but makers are chary of contracting for far ahead at the present prices. The mills are all reported to be husy, and some increase is noted in the inquiry for Black Plates for trimming purposes. No. 27 Common Iron, in small quantities from store, is quoted by j bbers in this city at 2.60¢. 2.65¢, while Galvaniz d Sheers in small lots rule at about 75 and 7½ % off.

### Chicago Report.

Scrap. — The demand is light, as usual at the holiday season. Dealers quote their buying prices as follows, Chicago delivery:

• •		
Peri	net ton.	Per fb
No. 1 Wrought Scrap		
Machinery Cast	6.00	
Malleable Cast	5.50	
Stove Plate (free of burnt)	4.25	
Burnt Iron and Grate Bars	3 00	
Sheet Iron and Hoops	2.00	
Plow Steel and Breaking		
Stock	4.00	
No. 2, such as Shovels, Hoes,		
&c	3,00	
Old Boilers-whole (Iron)	3.00	
" (Iron)—cut in single		
Sheets and Rings	5.00	
Old Gas-Pipe and Boiler		
Tubes	5.00	
Cast Borings	3.00	
Turnings	4.00	
Horseshoes	7.50	
Copper Bottoms		6 6
Copper Ctips and Heavy		7 ¢
Heavy Brass		6 ¢
Light Brass		3 0
Pipe Lead		21/26
Tea Lead		2 ¢
Zinc		240
Rubber		41.20

Anthracite.—Business is of very light volume. Carload lots of 12 net tons, or over, are quoted as follows:

The state of the s		
	F	Egg, Sto.
	Grate.	and Ch.
Chicago, Ilt.	\$4.75	\$5 (0
Milwaukee, Wis	4.75	5.00
Kansas City, Mo.	7.95	5.20
Council Bluffs, Iowa	7.95	5.20
Lincoln, Neb	\$ 10	8,35
Sioux City, Iowa	7.95	5,20
Aberdeen, S. Dak	8.00	8,25
Dubuque, lowa	6.05	6.30
Madison, Wis.	6.25	6,50
St. Paul, Minn	7.25	7,50
Burlington, lowa	6,45	6.50
Des Moines I wa	7,75	7.95
Davenport, I.wa	6,65	6.30
St. Joseph, Mo	7,95	S.20
Leavenworth, Kan	7,95	5.20
Omnho N. i		
Omaha, Neb	7.15	5,20

Colucado Anthracite.

COLORADO FUEL & IRON COMPANY.

Denver	\$8,00
Pnetd)	5,00
Cob ra to Springs	5,00
Lea tville	5.00
Cheyenne, Wyo	10.00
All points between Denver and	
Missouri River	8,85

Arrangements are being made for the holding of a large international exhibition of agricultural machinery in Vienna in May, 1895.

#### CONDITION OF THE

### Hardware Trade.

TOLIDAY FESTIVITIES and the usual routine of the closing days of the year have interfered largely with the volume of business. Merchants are naturally deferring as far as possible the jid ing of orders for goods and their unreleases response. goods, and their purchases are accordingly limited to their actual necessities. The market is unchanged in its tone in the matter of prices, the weakness which has prevail d and the tendency to lower values still continuing, being telt in some lines which have not heretofore been much affected. With the decline in the price of goods which has taken place during the year, in making the annual inventory, it will be with many mer-chants necessary to enter at less than cost many goods which have been carried for any considerable time, and this shrinkage in values will, unless the business has been characterized by close and judicious buying, be no inconsiderable factor in reducing the profits of the year. It is, however, a matter of congratulation that the Hardware trade has endured so well the long continued depression, and the new year will be entered upon in a more hopeful spirit, and with the expectation of a gradual if not rapid return to normal business conditions.

Advices from Chicago.—The Hardware jobbing trade has fallen off to some extent with the approach of the holidays, but is by no means as dull as had been expected. Orders continue to be received for all kinds of goods, showing that retailers are obliged to keep repleuishing their stocks. Inventory taking this year will be pursued under difficulties, as the attention of clerks cannot be given unreservedly to that absorbing occupation. Traveling salesmen are now in, for the purpose of making their annual arrangements and receiving instructions upon the points to be specially observed in the campaign of 1895. A novel feeling is observed among them. Usually they are in no hurry to get out on the road, but this year they are impatient to visit their trade. This is due to the promises given them of orders to be placed after January 1. If the orders then secured shall realize expectations, the New Year will start off with a heavy volume of business. Staple goods appear to be principally covered by the promises which are referred to. As they always carry with them more or less Hardware, the outlook is regarded as exceptionally favorable; very much better than that of last year at this time.

#### Notes on Prices.

Wire Nails.—The past week has been characterized by a continued inquiry for Wire Nails, which is good, considering the season. The mills also report a fair volume of business. In the matter of prices there is little change, but on the whole the market is steady and inclines to firmness. Small lots from store in New York are held at \$1.15 to \$1.20. Reports indicate that stocks in dealers' hands throughout the country are almost uniformly light, and the mills have not yet begun to accumulate Nails to any great extent.

Advices from Chicago. — Manufacturers report an increasing business, which is chicily among outlying districts. The city trade appears to be well supplied. Jobbers report a much better inquiry from their customers and look forward

to a large carload trade in January. Quotations are continued at \$1.10 for small lots from stock, and \$1.05 for small lots from factory.

Cut Nails.—The Cut Nail market is quict, transactions being limited to the immediate requirements of the trade. Its tore is unchanged. Small lots from store, New York, are held at 90 to 95 cents.

Advices from Chicago.—The local factory is now closed for repairs, but will be again in operation early in January, as orders are being received which will compel the resumption of work. The past week has been more fruitful in this respect than any for a considerable time. Some of the orders thus booked are of the old-time magnitude. Small lots from stock stand at \$1.

Barb Wire.—The demand for Barb Wire is moderate, many orders having been already placed, and some houses being disposed to wait until the new year opens in order to observe the course of the market. There are some who think that possibly orders may be placed at lower figures than those now current, but many well-informed houses recognize the importance of having orders booked in good season so as to assure delivery of Wire in time to meet the demands of business. Prices are, as they have been for several weeks, on a basis of \$1.85 to \$1.90 for Four-Point Galvanized in carload lots at mill, but on large ordera concessions are obtainable.

Advices from Chicago. - Manufacturers report a light business, as their salesmen are now at home for the holidays and orders are not coming in unsolicited. Jobbers have also done very little of late, but expect to do well after January 1, if inquiries now received develop into actual orders, as they have every reason to expect. Quotations are continued of \$2 10 for small lots of Galvanized and \$1.75 for Painted from stock, \$2.05 for Galvanized and \$1.70 for Painted from factory. In connection with the rumor now in circulation regarding rumor now in circulation regarding the probability of reviving the recent attempt to form a Barb Wire organization, it may be of interest to the trade to give a hitherto unpublished reason for the audden termination of what at the time seemed to be a most successful plan of operation. It is said that one of the largest companies, and, therefore, most deeply interested in the maintenance of prices, insisted upon concessions which were wholly disproportionate to its past business. The majority of manufacturers were so desirous of turning the unprofitable condition of the trade into one which would give them at least a slight return on their investment, that they were willing to concede what was asked for the aske of harmony, but a few could not bring themselves into a frame of mind to submit to what they deemed an unjust demand. Their consent to the plan being withheld or withdrawn, the scheme fell to the ground. Its failure is deplored by all who have knowledge of the hasis upon which it was founded, as it would probably have insured beneficial results to the entire trade.

Brass and Copper Tubes.—The manufacturers of Seamless Brass and Copper Tubes have issued under date December 7 revised prices on these goods. The new lists are given herewith. It will be observed that a reduction of 2 cents per pound is made on Brass and Copper Tubes, and on the Iron Pipe sizes of Brass Tubes a reduction of 3 cents per pound. The prices given in the lists are

net cash 30 daya without discount. The lists herewith given have been adopted both by the associated manufacturers and those outside. Randolph & Clowes, Waterbury, Conn., in sending out the new lists, give prices also on extra sizes of Seamless Brass and Copper Tubes, of which they are the only manufacturers in this country, as fol-

#### Brass Tubing.

To	Inside Dir	imete	rs o	nlv :	;			
(i), (i),	N. G.	5	- 9	10	1.2	1.7	1.1	-1/
	6	56	-4.1	41	40	49	101	-44
9	7	- 36	4.4	44	4.1	-\$17	111	41
1.0	8	36	44	41	40	49	- }51	-11
1.1	5)	- 56	44	41	49	4.1	111	9
1.2	1.0	87	45	45	50	.5()	ūΟ	ان
1.3	1.1	35	46	46	51	52	.1.7	51
14	12	59	47	47	30	53	3.5	.):
1.5	13	411	1	.15	56	55	54	Š.
16	1.4	42	ān.	50	53	50	54	
1.7	1.5	44	53	52	53	53	54	ä.
18	1.6	411	54	54	.11	54	55	ان
19	1.7	4~	55	55	.3.3	30	55	0
20	18-19	50	57	57	01	57	57	57

after these orders are filled, so that in all probability there will be no searcity The meeting Glass in the spring. called by the Indiana Glass manufact urers to consider a revision of prices, to which reference was made in our issue of the 13th inst., was adjourned to meet soon after the first of the year No reliable quotations are available. and both prices and trade are unsatis factory.

Old Metals - The market is quict and prices unchanged. The following quotations represent the current rates paid by dealers in the city:

•	
Heavy Copper	D 7 #
Light and Tinned Copper	D 61 1
Heavy Brass	Do 41 12
Light Brass	D :: 10
Lead	Ib 2 4 ¢
Tea Lead	
Zinc	D 21 4
No.1 Pewter₩	D 10 0
No. 2 Pewter	Db 51.23

Jute Butts			19	p. 11,	W 1849	
No. 1 Jute	Baggli	ng	2	D 1	GE 11/2	
Mixed Bagg	ing		3/	D: 42	(ct. 1 ¢	
No. 2 Baggi						
Hemp Twin	ie		· · · · · Þ	D 2	(il) 23/6	
Manila Roy						
Jute Rope						
Mixed Rone			75	B 54	68 mg	

Old Rubber .- The following quotations represent about the prices paid by dealers, New York delivery

Car Springs, ton lots, # B \$1.0	11.	(4)
Rubber Shoes, carloads, de- livered at factory * b	 J	,05%
Rubber shoes, less than car-		
loads, % lb	48	H :
White Wringer Rolls, & D	d	, E
White Syringes, H lb		

#### Trade Notes.

THE DENVER STAMPING COMPANY, Denver, Col., manufacturers and jobbers, favor us with their illustrated catalogue and price-list. The volume is

#### Seamless Brass Tubes.

Ontside Diameter -Stubs' Wire Gauge Standard. Cents per pound. December 7, 1894.  $\{j_{\frac{1}{2}}^{\pm}=\{j_{\frac{1}{2}}^{\pm}=j_{\frac{1}{2}}^{\pm}\}$ 20 20 20 20 20 20 20 20 15 15 15 15 15 15 15 15 15 16 16 17 17 18 18 19 19 20 21 22 23 24 225 26 27 28 29 30 32 33 35 36 18 19 18 19 18 19 18 19 20 21 21 22 23 24 25 26 27 28 29 31 31 32 33 34 35 17 17 17 18 19 20 21 23 25 27 29 31 33 36 111111111111111 15 15 15 15 15 15 15 15 16 16 16 16 17 17 18 18 19 20 23 24 25 26 27 28 30 31 33 34 16 16 16 17 18 19 20 22 24 28 30 32 35 15 15 15 15 16 16 16 17 18 19 21 22 24 29 32 15 15 18 18 19 20 21 22 25 28 33 33 244444565522223468840 22445655222233468840 17 17 17 17 18 18 19 20 21 22 22 23 33 38 16 15 16 16 16 16 16 16 17 17 18 18 19 19 29 20 21 21 23 25 25 25 30 31 17 18 19 20148855590335 16 17 18 19 20 21 25 25 31 35 16 17 18 19 20 21 27 25 29 31 35 33 3 5 5 503334

NOTE.—For diameters of the fractional parts of an inch, where no price is given, take the column to the left of where such size would appear if designated, thus: 1-15-16 would go at price of 13½ inches, 1½ at the price of 1 inch, 5½ inches at the price of 5 inches. No. 20, S. G., 1 inch is 27 cents; No. 20, S. G., 1½ inches would be 27 cents, and not 25 cents.

81 34

Copper Tubes, 3 cents per pound additional,

#### Prices-Iron Pipe Sizes.-Brass,

14 26	14 24	34 21	1.6 1.9	34 ' 13	1 13	$\frac{1^{1}4}{13}$	11/6 13	2 13	21 <u>6</u> 13	3 13	31.6 1.5	4 15	41.6 17	5 19	23
----------	----------	----------	------------	------------	---------	---------------------	------------	---------	-------------------	---------	-------------	---------	------------	---------	----

For all Tubes 14 inch thick or thicker (with the exception of Standard Iron Pipe sizes) we shall charge 5 cents per pound more than above price-list.

#### Tubes Cut to Lengths.

 $\dot{s}_4$ 

Brass Condenser Tubes, 55 to 1 inch, inclusive, 19 cents per pound, to No. 18, 8, W. G.; 2 cents per pound extra for each W. G. number thinner. No charge for tinning. Tinning Tubes other than Condenser Tubes, 3 cents per pound extra.

Heater and Illuminator. - In our issue of December 15 we gave an illustrated description of the Domestic Gas Light Heater and Illuminator, put on the market by the Hameley Metal Roofing Company, 18 Cliff street, New York. This article is sold to the trade at \$4.50, subject to a discount of 40 per

Glass. - The Glass market is characterized by the quietness which is expected to pervade trade during the holiday season. Little Glass is changing hands, and such orders as are received by jobbers are for small quanti-It is reported that the orders which have been taken by manufact-urers at the low prices which have been ruling are of such volume that factories will be quite busily employed in filling them for the coming two months. The low prices at which jobbers have placed orders for large quantities of Glass may give them control of spring prices, as present demand is limited. Manufacturers will produce stock for themselves

Wronght Scrap Iron. # gross

7,50 @ 8.50 Stove Plate Scrap...... # gross ton 5.00 Burnt Iron..... # gross ton 3.00

Old Rags, Paper, &c .- Demand is fair and prices substantially the same as those quoted last week. New York dealers' purchasing rates are as follows:

No. 1 White Rags	Ъ	3 @ 340
No. 2 White Rags	D	21, (21,9)
Mixed Rags	D	94 (0 1 6
Blues and 3ds	Ъ	117 (0) 1: . 2
Hard Sized White Shavings	Ib	21, @ 21,0
No.1 White Book Snavings	b	1% @ 21,0
No.2 White Book Shavings#	Ъ	1 (0, 13,2
Light Book Shavings \$	lb	34 @ 1 4
No. 1 Mixed Shavings	IL.	34 @ 1 @
No. 2 Mixed Shavings		08 10 B42
No. 1 Printed Books >	Ιb	1 (41/40
Ordinary Mixed Books #	D	16 (0) 8/4 0
Newspapers	Ъ	2-50
No. 1 Manila Paper	lb	8/ @1 \$
No. 2 Manila Paper	Do .	9- @ 3/18
Bogus Paper	B	36€
Common Paper	lò	14 111 3.52
Straw Chips	D	8,€
Binders' Clippings	Ъ	<b>¾</b> ¢

neatly bound in colored paper, and contains a very extensive assortment of Tinware and miscellaneous goods. The sections into which the catalogue is divided are as follows: Pieced Tinware, covering 16 pages; Japanned Ware, 15 pages; Black and Galvanized Iron Ware, Granite Ware; deep Stamped Ware; shallow Stamped Ware; Stamped Trimmings; Wooden and Willow Ware; miscellaneous goods; Indurated Fiber Ware; Hollow Ware and Tinners' Stock.

THE JOSEPH DIXON CRUCIBLE COM-PANY, Jersey City, N. J., who manu-facture graphite goods in great variety for metallurgical purposes, also prepare what are known as phosphorizers, used for the phosphorus additions in making phosphor-bronze.

J. WOOD & BROS,' COMPANY, Conshohocken, Pa., are turning their attention a most exclusively to the production of Soft Steel Sheets and Plates. They have abandoned some 15 double

puddling furnaces and erected a number of heating furnaces, Messrs. Wood are also operating the Plymouth Rolling Mill, at Conshohocken, under lease.

Among concerns recently incorporated in New York State is the Brooklyn Brass Mfg. Company, to manufacture and sell Metal Goods and Specialties in Brooklyn. The capital of the company is \$50,000, and the directors are Andrew II. Hogg of Brooklyn, John G. Lyon and J. E. G. Yalden of New York Clty.

P. B. CALVERT & Co., Philadelphia, arc, in our advertising columns, calling attention to the Nash Ventilator which they placed on the market a short time ago. The Ventilator, they claim, is the only one of its kind in the market. The ventilating disk revolves, thus causing a continual upward draft. The disk pin or pivot has a bearing of graphite situated within the base, the bearing being protected from soot, smoke and dust, by a cap or cover attached to the disk. The bearing, from its nature, is selflubricating and prevents the slightest noise. The makers claim that the Ventilator will run for years, with almost imperceptible wear; will positively prevent a down draft, and, having no solder in its construction, will not be affected by heat. Two styles are made, one as shown in the advertisement, another having an extended cover so arranged, the makers say, as to make a down draft absolutely impossible under any conditions. The Ventilators are made in sizes running from 4 inches to 60 inches, and all sizes above 20 inches have ball bearings.

THE INTERNATIONAL METAL PICK-LING COMPANY of Chicago were incorporated last week with a capital stock of \$60,000. The incorporators are Alex. N. Eamage, Elias S. Beck, Geo. W. Roberts, V. P. Sherwin, and Ed. S. White.

H. WETTER MEG. COMPANY, Memphis, Tenn., have lately added a retinning department to their Tinware factory, and are now establishing a galvanizing plaut.

The American Sheet Iron Com-Pany, Phillipsburg, N. J., issue cards calling attention to the Sheet Iron and Sheet Steel of their manufacture, their specialty being American R. G. Cleaned.

The Sherwood Mfg. Company, 34-36 Washington street, Buffalo, N. Y., publish illustrated catalogues and pricellsta relating to Injectors and Lubricators of their manufacture. A varlety of goods of this sort are noted and include among them such goods as Celiar Drainers, Oil Pumps, Pressure Gauges, Whistles, Ratchet Drilla, &c.

The Star Coupler Company, St. Louis, Mo., report a steady increase in the demand for their Star Couplers. As an extra inducement to the trade they advise us they will ship the first order received on 30 to 60 days' trial, and, if the couplers are not satisfactory, same can be returned at the company's expense.

The Grand Rapids Refrigerator Company, Grand Rapids, Mich., show in their announcement elsewhere in this issue the works of the concern, which they describe as the largest in the world. Views of two factories are presented and also of two warehouses. The capacity of manufacture is 50,000 Refrigerators per annum.

An announcement appears in our advertising columns of Pheips, Dodge & Company, 11 Cliff stret, New York,

relating to Tin Plates, Pig Tin, Sheet Iron, Sheet Zinc, &c. The roofing trade will also note the reference to Phelpa' triple coated roofing.

THE Hise Sanitary Refrigerator Company have been incorporated at Chicago with a capital stock of \$250,000. The incorporators are David W. Coons, O. S. Baylies and H. E. Hart.

THE OLD HOUSE of N. & G. Taylor Company, Philadelphia, manufacturers of Tin Plate, established as far back as 1810, in their announcement elsewhere send forth their eighty-sixth greeting to all their friends and patrons.

MERRITT A. Morse, Orlando S. Trusseil, Albert C. McLoon, Silas W. McLoon, Charles E. Weeks and Mervyn Ap Rice formed an association, at Rockland, Maine, which is to be called the Morse, Trussell, McLoon Machine Company. At present the company are doing business at Park place, but expect by the first of January to be ready to occupy new quarters on Sea street, where they will be prepared to do steam, water and gas fitting and general repair work on all kinds of machinery. The Company is capitalized at \$10,000, of which \$2700 was paid in.

The past season has been a bad one for the carrying trade on the great lakes. Returns of shipments show a material falling off in the shipments of most of the leading agricultural staples, except flour, of which 2,190,385 barrels were carried this season, as against 1,471,060 barrels last year. Of wheat only 14,530,880 bushels were shipped, compared with 19,720,775 bushels in 1893; of corn, 34,946,981 bushels, against 62,967,955, and of oats, 14.968,832 bushels, compared with 22,563,290 bushels carried last season.

The steady growth in post office receipts which has marked the business of that department for many years back was checked this year by the general business depression. For the first time the receipts at the post offices of the principal cities show a slight falling off as compared with the previous year. The following table, published by the Department, shows the gross postal receipts at New York, Philadelphia and Boston for the past seven fiscal years:

Vear.	New York.	Boston.	Philadelphia.
1888	. \$4.921,366	\$1,724,608	\$1,871.889
1889	. 5,430,170	1,857,501	2,031,549
1890	6.026.927	2,070,214	2,218,839
1891	6,386,521	2,173,450	2,388,205
1892	. 6,771,782	2,374,601	2,573,716
1893	7,359,777	2,565,641	2,705,691
I894	6,942,873	2,474,771	2,627,031

Judge Carpenter, in the United Statea Circuit Court at Boston last week, declared the telephone patent issued November 17, 1891, to Emil Berliner, as assignor to the Bell Telephone Company, to be void, and ordered that the papera should be delivered up to be canceled. The patent was attacked by the Government on the ground that a patent covering substantially the same invention was issued in 1880, and that the issue of the patent of 1891 was wrongfully delayed through various proceedings of the Patent Office. The Berliner patent is, next to the Bell patent, which has expired, the most important patent ever possessed by the Bell Telephone Company, as it covers the use of the carbon or microphone contact, used in the long distance transmission of speech. An appeal will, it is atated, be taken from Judge Carpenter's decree.

#### CONTENTS

CONTENTS.	
Editorials: PA	эл.
Comfortable Temperature	27
Inadequate Safety Valves	27
Nomenelature	27
The Letter Box—	
Insufficient Air Supply	28
Kerosene as a Wood Preservative	28
Name of Chimney Partitions	28
Double Chimney Top. Illustrated	28
Is It a Leak?	29
Combination Shear. Illustrated	29
The Will Foundry Sifting Machine. Ill	30
Aluminum Cooking Utensila	30
The Ferracute Double Action Drawing	
Press. Illustrated	32
	33
A Big Magnet	80
Roofiug and Cornice—	
Conductor Heads. Illustrated	34
Decorative Art Plates	87
Flashings	37
The Best Material for Boiler Tubes	37
Steam and Hut Water—	
The Morgan Surface Feed Steam Boiler.	
Illustrated	38
The Magee Water Heater. Illustrated.	39
Pressure Hot Water Heating	39
Exeter Hot Water Union Radiator	00
	10
Valve. Illustrated	40
A Heating Problem. Illustrated	40 40
Heating Notes	
Plumbing and Gas Fitting—	
English and American Plumbing	43
Traps and Vents	42
Malleable Castings from Coke Pig Iron.	
Illustrated	43
The Retail Store—	
The Wanted Oil Can. Illustrated	44
Brooklyn Lamp Radiator. Illustrated.	44
P. & H. Lawn Sprinklers. Illustrated	45 45
Memoranda	10
A Field for the Furnaceman	46
The St. Paul Stove Works	46
The Western Stove & Mfg. Company	46
Odd Plates	46
Heating and Plumbing-New Work and	
Contracts	48
Trade Report—	
The Iron Market	49
Metal Murket	49
Chicago Iteport	50
Condition of the Hardware Trade	50
Notes on Prices  Trade Notes	50 51
Metal and Misecilaneous Prices	53
Labor Exchange—	
Help Wanted	55
Situations Wanted	55

# Metal and Miscellaneous Prices.

## CHICAGO, DECEMBER 27, 1894.

	0
Tin-	Palma
Straits piga18¢	1
Imported Tin Plates-	Canal ax
Charcoal Plates.—Bright.	Irondale
Suaranteed Plates command special	IC, full
Brices, according to quality. Per box.	IX, 191
(C, 10 x 14 6 \$5.75 (C, 12 x 12 6 5 75	
IC, 14 X 20,	IC, full
IC. 20 x 28	Trondate
IX, 10 x 14 6 7.50 IX, 12 x 12 6 7.50 IX 14 x 20 @ 7.50	IC, full Irondali
Calland and   IXX, 14 x 20   9 25   MelynGrade   IXXX, 14 x 20   11 .00	10, 100
1XXXX, 11 x 20 12.75	IC, ful
1X Z0 x 28	Trondale
IXX, 20 x 28 18.53 IXXX, 20 x 28 66.22 10 IXXX, 20 x 28 66.22 10	Each c
DC, 12 9 1 1/ 4 5 50 DX 12 8 1 17 @ 7.25	
IC. 10 x 14 5.50 IC. 12 x 12 5.59	R. W. &
1C. 14 x 20	R. W. &
Allaway Grade. 11 (1) 1 1 20 1 20 1 20 1 20 1 20 1 20 1 20	Old Hun
IX 14 x 20 8.00 IX 11 x 20 8.00 IX 2 20 x 98 64 13.59	
TX 20 x 28 (a. 16.00	Palm, 10 Palm, 12
Ooke Plates-Bright.	Empire,
Per box.	Empire, Hickory
# Steel Coke—TO. 10x14.14x20.84.75 @ 5.00 10, 14x20.90 b. 4.25 @ 4.50 10, 14x20.100b.4.50 @ 4.75 10x20.00b.4.50 @ 7.75	Alaska
10, 14x20, 100B, .4.50 @ 4.75 10 x 20 @ 7.95	Alaska Special,
20 x 28 &10.00	Niagara
X, 10x14, 14x20	iroquol
Charcoal Plates.—Terne.	Weatmo
Guaranteed Plates command specia	1C, 14 IC, 20
Fices, according to quality.	Kenwo
10. 14 x 20 @\$5.00 20 x 28 80.00@10.00 IX. 20 x 28 12.00@12.50	IC. 20
IX. 20 x 28 12,00@12.50	Furnist IC, 20
Weroester Brand and equal.—  IC. 14 x 20 5.25  IO. 20 x 28 10.00 @ 10.50	
1A. 14 I 20. 0.20 W 0.00	Irondal
	Each Challen
Tin Boiler Plates.  Per box of Per box of	l -
100 -b core 119 -boats	10.14
X,14 x 28	Rimois,
X, 14 x 31 13.00 12.50 XX, 14 x 31 15.00 15.00	1C, 20
Per box of	E. L.:
T 14 T 56 \$12.50	1C, 20
XX 14 x 56. \$20.50 11.00 X 14 x 60. 13.50	Jessie:
<b>XX, 14 x 60</b> 32.25 15.00	Old Pro
American Tin Plates	TC. 14
Charcoal Plates.—Bright.	IX, 14 1C, 20 1X, 20
Minerva:	1X, 20
1C, 10 x 14, 12 x 12, 11 x 20\$5.874; 1X, 10 x 14, 12 x 12, 14 x 20,6.624;	H. B. L
Florence.—	1C, 11
IO, 10 x 14, 12 x 12, 14 x 20, \$5.75 IX, 10 x 14, 12 x 12, 14 x 20, 7.50	IC, 11 1X, 11 1C, 20 1X, 20

Palma	1,
IC, 10 x 14, 12 x 12, 14 x 20., d 25 IX, 10 x 14, 12 x 12, 14 x 20., 8, 181 Canal axtract or other crosses and 20 x 28	1
- Office Charles bettern	1
Irondale, AAA, tissue paper packed.	
IC, full weight 11 x 20 \$5.75 IX, full weight, 11 x 20	1
Irondate A A '	- 1
1C, full weight, 14 x 20,	,
Irondale A	, [
Leandale B:	
10, 100 lbs , 11 x 20	5
Lyministra et 12 - 14 y 20, 100 lbs 4.00	υĹ
Ic. 14 x 20, full weight 4.5 Each extra cross 75c.	1
Coke PlatesBright.	-
	0
R. W. & B., IC, 14 x 20, 108 lbs #5.0 Gld Hundred, IC, 14 x 20, 100 lbs 4, 7, R. W. & B., IC, 20 x 28, 218 lbs 10 0 Old Hundred, IC, 20 x 28, 200 lbs 9,5	0
Old Hundred, IC, 20 x 28, 200 lbs 9.5	0
Roofing Plates.	اہ
Palm, 1X, 20 x 28	5
Empire, IX, 20 x 28	<u>.</u>
Hickory, IC, 20 x 28	0
Alaska (heavily coated), IC, 20x28@ 13.5	0
Special, 1C, 26 x 28	0
Roofing Plates.  Palm, 10, 20 x 28	0
1C, 14 x 20	5
Kenwood:	- 1
IC, 20 x 28	00
Furniston: 1C, 20 x 28	5
irondale AA, IC, 14 x 20	I
Irondale B, IC, 20 x 28 10.1	0
Challenge, 1C, 20 x 2810.8	50
Jano:	
1C, 14 x 20	• •
Riinais, Old Method:	
1C, 20 x 28,	96
1C, 20 x 28 21.	08
Jesste:	5.0
Old Process:	0.0
9	50
IC, 14 x 20 IX, 14 x 20 IC, 20 x 28 IX, 20 x 28 IX, 20 x 28 IX, 20 x 28 IX, 20 x 28	00
D D C Old Style:	
H. B. L., Old Style: IC, 11 x 20	00
5 1C, 20 x 28. 14. 0 1X, 12 x 20. 8. 1 1X, 20 x 28. 14.	25 00
0   1X, 20 x 28 16.	50
	_

Continuous Roofing Tin
derchant's Tandemper rell, 2 c5
Sheet Iron-
Black.
Common American Refined.
Nos. 10 to 10.
Russia, Planished, &c. Genuine Russia, alt. numbers18s net. Patent Planished > B A, 10 4 B, 9 4 dis. 5
Craig's Polished Sheet Steel834
Galvanized.  Juniata or first qualitydis.75\\10\( \)
Copper- Ingot.
Lake
Discount on old list (except advance on cold rolled polished bolier sizes to
25¢), 25%.  Copper Bottoms.
Discount on tid list, 25%. Seamless Brass and Copper Tubes. Base price, 15%, Chicago, with extras according to size. Copper, Bronze and Oliding Tube, 36 *
p additional.
Brazed Brass Tubing. (100 D lots.) (To No. 19 inclusive.)
Discount, 40%.  Plain, 34 inch up to 2 inch
Roll and Sheet Brass. (100 % lots.) Discount, 40%.
Slab Spelter-
Western Boelter
Sheet Zinc-
600 D casks. \$1,75 800 D casks. 4,15 Loose sheets. 5.05
Solder— 10%@11%# Extra Wiping
The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.
Antimony - 10@11# Cookson . 10@11# Halletta . 10@36#

Load-
of Pio Land Skill
re 64,6, dis 10,6 lock Tia Pipe 6,6 dis 10,6 lock Tia Pipe 6,6 dis 10,5 lock Tia Pipe 10,5 dis 10,5
ock Tia Plpe
sect
and under, Pialn
and under Galv 56x10x10%
and over Galv 67%
olier Tubes, list Oct 24, 189270&10\$
neerted Jointe Casing, list Nov. 16.
1892 47 48 teel Boiler Tubes 27 45
old Drawn Scamileas Steel Tubing 803
Cast-Iron Soil Pipe— ast-Iron Soil Pipe, Tarred; aixes 2 to 6 Inches, Inclusive
ast Iron Soil Pipe, Tarred; sixes 2 to 6
thoraiges die 604
ther sizes
hendroth's Galv. Spiral Riveted 604
ustin's Corrugated
titchie's (Galv. Iron only) Cor'd 65%
itchie's Spiral Lock Seam, Gaiv'd 60%
ames A Miller Bros (Galvid Iron
ustin's Spiral Ribbed Pipe
djustable
Furnace Fittings-
Furnace Fittings- placount from Excelsion Steel Fur- nace Co.'s list
nace Co.'s list
Steel Roofing-
erfection \$1.10 square
Perfection
Steel Roofing— erfection
refection
refection
### 152.190 square
Metallic Shingles
Metallic Shingles— Dushmans
Metallic Shingles—  ushman's \$2.00 square derchant & Co.'s Spaolsh Tiles: Copper, 14 os \$9.76 \$14.25 square Tin \$9.76 \$14.25 square Steel, painted \$9.76 \$14.25 square Oracin Pipe—Tvc. Discount from list 705  Paints, Olis, &c.— Decoderized Benzine 705  From Paint, Bright Red \$8.50  "Brown \$8.50  "Brown \$8.50  "Ground in oil, B. Red \$8.50  "Ground in oil, B. Red \$8.50  "Ground in oil, Brown \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Brown \$8.50  "Ground i
Metallic Shingles—  ushman's \$2.00 square derchant & Co.'s Spaolsh Tiles: Copper, 14 os \$9.76 \$14.25 square Tin \$9.76 \$14.25 square Steel, painted \$9.76 \$14.25 square Oracin Pipe—Tvc. Discount from list 705  Paints, Olis, &c.— Decoderized Benzine 705  From Paint, Bright Red \$8.50  "Brown \$8.50  "Brown \$8.50  "Ground in oil, B. Red \$8.50  "Ground in oil, B. Red \$8.50  "Ground in oil, Brown \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Brown \$8.50  "Ground i
Metallic Shingles—  ushman's \$2.00 square derchant & Co.'s Spaolsh Tiles: Copper, 14 os \$9.76 \$14.25 square Tin \$9.76 \$14.25 square Steel, painted \$9.76 \$14.25 square Oracin Pipe—Tvc. Discount from list 705  Paints, Olis, &c.— Decoderized Benzine 705  From Paint, Bright Red \$8.50  "Brown \$8.50  "Brown \$8.50  "Ground in oil, B. Red \$8.50  "Ground in oil, B. Red \$8.50  "Ground in oil, Brown \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Purple \$8.50  "Ground in oil, Brown \$8.50  "Ground i
Metallic Shingles— Dushmans

## NEW YORK, DECEMBER 28, 1894.

The following quotations are for small lots.

Aluminum-	
No. 1 Ainminum (guaranteed over 98%	-
pure), in rolling ingots Small lots	3
100-to lota	1
No. 1 Aluminum (guaranteed to be over 98\$ pure), in ingots for remeiting:	(
Amall lota B, 100	
100 % Inta	
No. 2 grade (guaranteed to be over 94%	
pure Aluminum), cast in lagots for re-	
melting	
8mall lots 10. 55¢	l
100-5 lota₩ D, 58# Ton lota₩ D, 50#	1
	l
Antimony-	l
Hallett's D, 8 #	ŀ
Erass-	L
Planishednet	ŀ
Roll and Sheet25@30%	l
Koll and Sheet	l
Brase and Copper Tubes	ı
Brazed Brass Lubing	1
Brown & Sharpe's Gauge the Standard.	l
List April 9, 1894.	١
Plain Round Tube. Per D.	l
hain, nn to 3(-1n,	١
	ı
76-in. up to 98-in	ı
1/ in un to 5-19-in	ì
9 18.to anto 16.to 1.00 19	1
14.in un to 3-16-11	1
Smaller than 16-in. Special 8 in. and larger. Special	1
8.in. to 8 in., to No. 19, inclusive, .28)	1
Conner and Bronze Tubing-	1
COUDS! Will a more than bears	1

ı	Conductors-	
	Corrugated. Round or Square—calvanized60&10s Galvanized, Locked Joints	1
	Spiral Riveted-	
	See also Elbows and Shoes; Eave- Trough Miters; Strainers, Con- ductor.	1
	Conductor Strainers—See Strainers, Conductor.	
	Copper— Bottoms, Pits and Flats 194 W B, net Ingot.	0.0
	Lake	20.0.0.0.0.0
6	Tubes - See Seamless Brass	(
	Eave Troughs-	1
	Lap or Slip Joint, Galvanised60&10% Lap or Slip Joint Terne	ľ
	Eave-Trough Mitres-	١,
400	Elbows-	30 30 30 30 30 30
9	Tin	1
200	Crimped Tubing— Re-Tinned or Galvanised	2000
	Buffalo Foor-Piece.	L
-	No. 1. 80.70 .77 .80 .87 1.05 per dos.	İ

Elbows and Shoes-
Tin
Corrugated.
Flat Orimp. 605
Galvanized
Tin
Iron, Sheet—  Black, Common R. G. Cleaned American.  Nos. 10 to 16 \$\psi\$ 2.25 2.70\$  Nos. 21 to 21 \$\psi\$ 2.35 2.70\$  Nos. 22 to 24 \$\psi\$ 1.235 2.70\$  Nos. 22 to 24 \$\psi\$ 2.55 2.70\$  Nos. 25 and 26 \$\psi\$ 2.55 2.70\$  No. 27 \$\psi\$ 2.55 3.10\$  No. 28 \$\psi\$ 2.75 3.10\$  American B. B \$\psi\$ 3.40\$  American B. B \$\psi\$ 3.40\$  Genoine Russia, accord.  Ing to assortment. \$\psi\$ 3.10\$; 116116  Patent l'innished \$\psi\$ 3.40\$; 18.94.55  Patent l'innished \$\psi\$ 3.40\$; 18.94.55
Galvanixed. B. B.
Nos. 10 to 16
Lead-
Bar 546 20%

Pipe, Drain	Strainers Conductor— Galvanized60s	Pheenlx, IC, 14 x 20. 4.75 Pullman, IC, 14 x 20. 5.75 Republic, IC, 14 x 20. 4.75	Pontymister Old } 14 x 20 5.50 Style Grade, IC, 20 x 2811.00 IX, 14 x 20 6.50
Fron Soll	Tin, Pigs and Bars-		20 x 2813.00
Fittings, Pipe, " 05&10&105	Banca, pigs, ₩ b16146.17¢	IC.14 x 20	20 x 2818,00 Worcester Grade, IC, 14 x 20 4.50 20 x 28, 9.00
Furthes Heavy Plue." 65x10x105	Banca, pigs, * D. 16146a17¢ Straits, pigs, * D. 15166a16¢ Straits in bars, * D. 16146a17¢	IX. 14 × 20	IX, 14 x 20 5 78 20 x 28 1.50
		1X, 14 x 20 Casted (18 quarter) 9, 50 Stordard 1c, 11 x 20 4, 15 Stor 1C, 20 x 28 11,00 Superfor, [C, 11 x 20 1, 12] Taytor's Old Method, [C, 11 x 50 0, 50	Dean GradeIC, 14 x 20
Fittings for both kinds	Tin Plates-	Superior, IC, 14 x 20 1,50 Taylor's Old Method IC, 14 x 50 0.50	20 x 28 8.50 IX. 14 x 20 5.50
Pipe, Spirat-  Palvaused 665 Fin 665  Pock and Slag Wool-  Pock and Slag Wool-  To e cub foot.	American Terne Plates-	Tayler Old Style (Resquared), IC,	13, 14 x 20 5, 50 20 x 28 11.00 Abercarne Grade.—1C, 14 x 20 4,00 20 x 28 8,00
rin60%	Alaska (re-squared) IC, 14 x 20 \$0.50	Taylor Roofing, IC, 14 v 20 6 75	20 x 28 8 00
Tock and Siag Wool-	Allegheny, IC, 14 x 20 1 50	The Osborn Rooting, 10, 20 x 28, 12, 25	IX, 14 x 20 5.50 20 x 2811.00
	Aliserly, extra quality, fc, 14 x 20. 5 (25) Aliderly, extra quality, fc, 14 x 20. 5 (25) Alichy, extra quality, fc, 14 x 20. 5 (25) Anchor fc, 11 x 20. 5 (25) Apolle Roofing, fc, 14 x 20. 5 (25) Elack Phonond Extra Coated),	Thomson's Puritan, IC, 14 x 20 5 id	Mansel Grade, IC, 20 x 288.00
Rock Wool, ordinary 25 27#	Apollo Roofing, IC, 14 x 20 5 50	Tip Top, IC (Resquared), 14 x 20 1 88	amported Bright Plates-
Rock Atoor extra	Black Diamond (Extra Coated).	Triumph, Old Style, IC, 11 x 20, 7.5)	Charcoal.
Rosin - Continue and Good-Strained	TC, 11 x 20	U. 8. Monongabela 11, 14 x 20 31,00	Duty: 2.2# * b.
Rostn. C. & D \$ 161 21 12:6\$1.15	1X, 20 x 28, 11,50	U. S. Redipped, IC, 14 x 20 8.25	land Grade. IC, 10 x 14
Bosin O & H w bbi \$1.725 253 00	Boston, 10, 14 x 20	Wando, C. 14 x 20	" IO, 12 x 12 5.60
Continue and Good—Strained           Rosin, C. & D.         > 100         R. 12a&t., 15           Rosin, E. & F.         > 101         R. 15mcR. 12a           Rosin, E. & F.         > 101         R. 15mcR. 12a           Rosin, E. & F.         > 101         R. 17mcg. 12a           Rosin, E. & K.         > 101         R. 17mcg. 12a           Rosin, M. & N.         > 101         R. 15mcg. 12a           Rosin, M. & N.         > 101         R. 15mcg. 12a           Rosin, M. & N.         > 101         R. 15mcg. 12a	Black Dhumond (Extra Coated),   (c, 1) y 29   7, 70   B. ms of xtra Coated), (c, 20 x 28, 11, 50   Extra Coated), (c, 20 x 28, 11, 50   Extra Coated), (c, 11 x 20   0, 25   Encosity, (c, 11 x 20   1, 25   Captrol, (c, 11 x 20   1, 25   Cultra, (c, 11 x 20   1, 50   Columbus, (c, 14 x 20   3, 25   Columbus, (c, 14 x 20   3, 25   Course, (c, 12 x 20   3, 25   Course, (c, 12 x 20   3, 25   Columbus, (c, 14 x 20   3, 25   Course, (c, 12 x 20   3, 25   Co	Taytor's Old Method, IC, 11 x 50 0.50 Taytor's Old Style (Resquared), IC, 14 x 20 7, 20 Taylor Roofing, IC, 14 x 20 6, 7, 20 Taylor Roofing, IC, 14 x 20 8, 15, 25 Thomson's Puritan, IC, 14 x 20 8, 15, 25 Tip Top, IC (Resquared), 14 x 20 8, 18 Triumph, Old Style, IC, 14 x 20 6, 10 U. S. Monongahela, IC, 14 x 20 8, 25 Vonus, IC, 14 x 20 8, 25 Vonus, IC, 14 x 20 8, 25 Wattle, IC, 14 x 20 6, 60 Westnoreland, IC, 14 x 20 6, 25 Willow IE, 14 x 20 6, 25	" IC, 14 x 20
	Central, IC, U x 20 1 75	Willow IC, 14 x 20	" " [X, 12 ¥ 12 7 (0)
Shoes and Elbows—See Ri	Columbia, 10, 14 x 20 6 25		" 1X, 14 x 20 0, 80 " 1X, 20 x 28 13.00
hoics and Shoes. Slate Roofing—	Cort's 0.0 Style, 10, 14 x 20	American Bright Plates	
according to size, f.o.b. cars, Quarry	Duntap's Pouble Dipped, IC, 14 x 20 7.50	Almond IC 14 x 20 \$5.95	" DX, 12½ x 17 6.50
Station.	Columbus, IC, 14 x 20	Almond, IC, 14 x 20. \$5.25 Brilliant (Tissue Packed), IC, 14x20. 8 K	DC, 12 x 17. 6.60 DX, 12 x 17. 6.60 Allaway Grade. IC, 10 x 14. 4.75 " IC, 12 x 12. 4.00 " IC, 14 x 20. 4.76
Pennsylvania : Rest Bangor, # sar	Empire, IC, 14 x 20 5.12 w	Brooklyn, IC, 14 x 20	1C, 14 x 20 4 75
Red Bangor   # sqr.	Eureka 200 lbs., IC, 20 x 28 9.70	Climax, IC, 14 x 20 4,87 sq.	" IX,10 x 14 5,50
No. 1 Chapman, 1 sqr 3.9065 4.25	Excelsion IC, U x 20	1X, 14 x 20	" IX 12 x 12 5 75" " IX 14 x 20 5.50
Lehigh Slates, * sqr 3.00@ 4.50	Flag. IC, 11 x 20 4.25	Florence, IC, 14×20	" IX, 14 x 20 5,50 " IX, 20 x 28 11,00
Vermoni: Ees Green, * sqr 2.50@ 2.75	Florida, IC, 14 x 20 1.75     Flushing, IC, 14 x 20 8 25	1X, 14 x 20	DC, 12) x 17 4.25
Prente % sor 3.50@ 4.50	Flag. 1C, 11 x 20 4,28 Florida, 1C, 14 x 20 1,75 Flushing, 1C, 14 x 20 8,25 Freeport (Hand dlipped and Resquared).	Brooklyn, IC, 14 x 20. 5,50 century, IC, 14 x 20. 5,00 clumx, IC, 14 x 20. 4,87% Excressor, IC, 14 x 20. 6,50 Five constant in the constant in	Coke. Steel Coke.—IC, 10x14, 14x20 4.25
Unfailing Green, ¥ sqr 3.50@ 4.00 Red, ¥ sqr 9.75@12.00	1C, 14 x 20 6.50 1X, 14 x 20 7,75	Ivy, IC, 20 x 28	10x20 6.50
Solder and Soldering	Olobe, IC, 11 x 20 5.50	" IX, 20 x 28	20x28, 8.50
Fluids- Solder-	Golden Star Old Style, IC, 20 x 28, 15,00 Grace, IC, 11 x 20, 12,20 x 28, 18,00 Grace, IC, 11 x 20, 4,25 Hamilton's Best Redipped, IC, 14x20 7.75 Hickory (Resquarer), IC, 14 x 20, 5,00	Merchant's Dipped, IC, 14 x20 10.00	IX, 10x14, 14x20 5.25 B. V. Grade.—IC, 10x14, 14x20 4.25 [mported Boller Plates.—
S&V, guaranteed 11@ 11 0 € No. 1 9@ 11 0 €	Grace, IC, 11 x 20	Merion, IC, 14 x20	Imported Boller Plates   IXX.14x26(112 sheets)
No. 1 Polyage of Solder Indicated by private	1X, 14x20 9.25	Merion, IC, 14×20	IXX, 14x28(112 sheets)
Prices of Solder Indicated by private rands vary according to composition.	Juniati, IC, 20 x 28		IAA, 19431(112 800018) 18.20
Soldering Fluids- Concentrated Soldering Flux.	Juno, IC, 14 x 29 5 50 Kenslagton, IC, 14 x 20 6,75 IX, 14 x 20 8,00 Knoxall, IC, 14 x 20 4,75	" IX, 14 x 20. 0,00  New Castle Palm Charcoal, IC, 14 x 20. 0,50  New Castle, Charcoal, IC, 14 x 20. 0,25  New Castle, Charcoal, IC, 14 x 20. 7,50  New Castle, S, Charcoal, IC, 14 x 20. 7,50	Tinning- Brass and Copper
tob New York.	IX.14 x 20 8.00	" IX, 14 x 20 8,00	Tuhing-
In barrels, # B	Knoxall, IC, 14 x 20	New Castle, Charcoal, 10, 14 x 20 6 25	Tubing— Tin
Gedney's Soldering Fluid.	Laufman's Apollo (Resquared), IC, 14 x 20	New Castic, S. Charcoal, IC, 14 x 20, 6,00	Galvanized
In carboys or barrels, * D	l Laufman's Apollo (Resquared), IX.	New Castle Palm Coke, IC, 14 x 20, 5.75	Standard List
funded when returned.	f 1 T C 1	Name Grade Gold IX, 14 x 20 6.85	Troughs, Eave - See Lave
Partection Soldering Flux	Lion (Stamped), IC, 14 x 20	New Castie, S. Charcoal, IC, 14 x 20, 6, 7, 50  New Castie, S. Charcoal, IC, 14 x 20, 7, 25  New Castle Palm Coke, IC, 14 x 20, 5, 75  New Castle Coke, IC, 14 x 20, 5, 50  Oak, IC, 14 x 20, 4, 75  Palma IC, 14 x 20, 4, 76  A 60	Brass and Copper.— Standard List
Bbls., about 500 b, F b	IX, 20 x 28	Oak, IC, 14 x 20 4.75	Improved Lock Frame, per dos\$15.00
bbls, about 300 b, # b4	Maple, IC, 14 x 20 5.75   Merchant's Roofing (Resquared).	Pausy, IC, 20 x 28	Baley Improved Pattern 2 doz 18.00
Hola., about 500 b, w b	IC, 14 x 20 7.50	Onk, 1C, 14 x 20. 4.76 Paima, iC, 14 x 21. 6.00 Pausy, 1C, 20 x 28. 10, 50 "11, 20 x 28. 13,00 Phoenix, IC, 14 x 20. 5, 374 "1X, 14 x 20. 6, 75 Royal, IC, 14 x 20. 6, 75 Royal, IC, 14 x 20. 6, 75	Wrought Iron Pine-
Kegs, about 55 b, W b4¢) Wager's Soldering Salts.	IC, 14 x 20     7.50       Meurer Roofing, IC, 14 x 20     7.75       National, IC, 14 x 20     5.50       Nava, IC, 29 x 28     10.50	IX, 14x20 6,75	Wrought Iron Pipe— 14 and under, Plain
Large quantities, per b	Nava, IC, 29 x 28	Royal, IC, 14x20	114 and under, Galv
	New Castle Old Method, IC.20x28,18.00	Versattles, IC, 14 x 20	150 and over, Galv
Speiter-	New Castle Palm, IC, 20x2814.50	U. S., IC, 14 x 20 7.25 Versailtes, IC, 14 x 20 5.76 Wainut, IC, 14 x 20 4.05 Youghlogheny, IC, 14 x 20. 6.00	15 and over, Galv
Western Spelter	Osborn's Old Process, IC, 20 x 2814.00		Inserted Joints Casing, list Nov. 16,
Spiral Pipe-See Pipe, Spiral.	Osceola, Old Style, IC, 14 x 20, 7 25	Imported Terne Plates-	Steel Boiler Tubes
Stove-Pipe Elbowa-See El-	IX, 14 x 20 8.75	Charcoal.	Cold Drawn Seamless Steel Tubing601
Stove Trucka - See Trucks, Stove.	New Castle Palm, IC, 20x28x, 18,00 Old Colony, IC, 14 x 20 7,59 Osborn's Old Process, IC, 20 x 28, 11, 00 Secola, Old Style, IC, 14 x 20 7,25 Pennsyl Old Method (Treble Coated), IC, 14 x 20 7,25 Phillips' Roofing, IC, 14 x 20 7,25 Phillips' Roofing, IC, 14 x 20 7,00	MF Grade, IC, 14 x 20	600 b casks # b 4%
Stone	Phillips' Roofing, IC, 14 x 20 7.00	20 x 28 12,50	Per D 534

### It Is Reported—

#### Colorado.

That the ROCKY FORD Hardware house of W. S. Swink & Co. has been sold to a new firm consisting of P. J. and A. L. Reifle.

That the Pueblo Hardware Company. Pueblo have taken the agency for the Pope Mfg. Company's line of Bicycles, including the Columbia, Hartford and Wizard. They are intending to add a complete repair shop to their establishment.

#### Connecticut.

That the Hardware store of J. E. Wadsworth & Sons, at North Haven, was robbed on the 18th inst., a quantity of Pocket Cutlery being taken.

#### Illinois.

That William Glanville of STOCKTON bas purchased a Hardware store at Davis, which he will take possession of on January 1.

That the Hardware store of Emannel Holbrook, Batavia, was robbed on the 19th inst., about \$600 worth of Guns, Revolvers, Razors and other ar-

ticles being taken.
That the Geo. Eidman Implement Company, Belleville, have been incorporated. The capital is \$5000.

#### Indiana.

That J. D. Allman has purchased H. Sheetz's interest in the Hardware firm of Allman & Sheetz, REMINGTON, and will hereafter conduct the business under his own name. Mr. Sheetz has as yet made no plans for the future.
That the Hardware store of E. B. Schenck, at MOUNT VERNON, was en-

tered on the 9th inst., and a quantity of Revolvers and Knives stolen.

That Victor Bros., Hardware and Tinware, Fort Brancii, have sold out their business.

#### lowa.

That M. F. Logan has purchased John T. Smith's interest in the Hardware business heretofore conducted under the style of Smith Bros., at SHELDON. The style will hereafter be Smith & Logan. Mr. Smith intends spending some time at Hot Springs, Ark, in the hope of recoverating his Ark., in the hope of recuperating his

health.
That William Meyers has purchased the Van Kirk Hardware stock, at

SWALEFALE.
That G. W. Garner & Co., Hardware, &c., Winterset, have opened a new store.

That J. B Jewell, Hardware merchant, Forest City, has sold out to S.

That the Gillette Hardware Company of Sioux Cify have been incorporated, with a capital of \$20,000, by T. H. Green, T. H. Preston and C. E. Hughson.

#### Kansas.

That the Hardware firm of Shelden & Shelden, Topeka, have been dissolved. Marion Sheldon will continue

the business at the old stand.
That the McKnight Wholesale Hardware Company of Wichita have been incorporated. The company are conposed of the members of the old firm of McKnight & Co., J. H. McKnight being the president.

#### Massachusetts.

That the store of Marble & Wilson, Stoves, Hardware, & ... ASHBURNHAM, was robbed a short time since. Michigan.

That T. S. Crosby has purchased Richardson & Tiernan's store, at Go-BLEVILLE.

That Eugene Reynolds has purchased the interest of E. L. Mather in the Hardware firm of Mosher, Bissell & Mather, BAY CITY, Mr. Mather will shortly leave for Naples, Italy, where he will spend some time.

That the Hir Hardware Company

That the Hix Hardware Company have been organized at Jonesville to succeed Gilbert & Hix.

That Jacob Dykema, formerly a clerk for Joseph Berles of Grand Rapids, has purchased the Palmer Hardware stock,

Minnesota.

That Crabtree Bros., Hardware dealers at Herman, have dissolved.

#### Missouri.

That T. D. Osborn & Sons, Fatr-rout, have sold their Hardware busi-ness to Kennedy & Scholes, the new firm to take possession on January 1.

That the firm of Stoermer & Kiethley, dealers in Hardware and machinery, St. Peters, have been dissolved. William Stormer has sold his interest

William Storimer has sold his interest to Lee Kiethley, who will hereafter conduct the business.

That J. W. Wills' interest in the Hardware business of Wills & Henry, Centralla, has been purchased by R. S. Tucker. Mr. Wills has withdrawn for all health. from the firm on account of ill health.

Mississippi.

That J. F. Small & Co., Hardware merchants, Cornth, have been succeeded by Small & Elgin.

Nebraska.

That Jacob A. Wolfe. Hardware dealer, North Bend, has been succeeded by Wolfe & Kelly.



